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THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

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THE DECORATION OF PUBLIC BUILDINGS.

THE subject of wall painting and the decoration of public buildings is being brought into much prominence at the present time. The President and Council of the Royal Academy, with a view to promoting the art of decorating buildings, propose to hold an exhibition of decorative paintings and sculpture at Burlington House in January and February, 1923, the Royal Academy Schools have recently started the study of decorative paintings on a large scale, and other schools of art are working in the same direction. To take another instance, the London County Council has agreed to place certain wall spaces in its new County Hall at the disposal of four of the principal art schools of London for decoration by the students. The Committee of the British Empire Exhibition will also, it is understood, provide a large extent of space for mural decoration in the new exhibition buildings at Wembley Park. We have another indication of the interest felt for such decoration in the fact that Mr. Thomas E. Collcutt has organised, as our readers already know, a competition for architects and architectural students, who are to prepare designs for a business building facing on an ordinary London street, in which colour of a permanent nature is to be the dominant feature. All of which, if we understand the implications lying in the subject, is good; but we have to remember it is not size that is the fundamental of successful wall painting, but right approach and endowment. Nevertheless, at first sight the present schemes put forward are such as would appear to invite general support, as what could be more desirable than that our municipal and other buildings should become beautifully pictorial of the local and national history of the country?

When, however, we come to examine the methods through which these schemes are to be carried out we find them to be somewhat lacking in understanding. Some of these activities appear to aim more at making opportunities for the experiments of students directed by their art masters than for the welfare of mural painting, and we should think that for such experiments the walls of the art schools were a more fitting place than those of our great national buildings. When we consider the nature of mural painting it must seem a very inadequate way of approaching such a task, for the object in such a case should be that of securing the practice of artists of attainment in such work, seeing that it demands the highest powers added to length of experience. It shows how little understanding there is amongst those who are responsible for some of the present proposals that they should attempt the highest tasks in this perfunctory way, and is almost the *reductio ad absurdum* of that blundering notion which mistakes craftsmanship for art. This danger is very apparent just now, and there could not be a more formidable instance of this upside-down method than the present one of ignoring artists and getting students to decorate public buildings because they are cheap. If wall painting is to be promoted in this country it will not be through theories of how it should be done, or through employing students, but through employing artists who, disregarding such formulæ, bring ripe experience and attainment to the task.

The subject is important quite beyond any particular instances. Are societies and institutions for art, in the work of maintaining themselves, becoming a menace to the freedom of the arts? There appears to be a growing tendency in the machinery of organisation to obstruct the artist; his freedom is so often either surrendered to its control or he finds himself outside. The public have to understand that the security for art lies first of all with the artist, and not with any society that may assume to promote it. It is therefore a suitable occasion to consider the influences at the back of this movement for public mural decoration and whither they tend. While on general grounds we can all give approval to the aim of promoting mural painting in more national ways, we must in such a difficult matter be sure that the foundations on which we seek to build are sound. So far from this being so we think any method underselling the work of the artist and using his money as a tax- and rate-payer to replace him with immature experiments is thoroughly unsound. That there is much promise of future accomplishment in the work of young students none would deny, and if it were a matter of the craft only, if the needs of mural painting were satisfied by a certain dexterousness of school trained facility, we should have no doubt that in organising the scheme for national mural decoration on the basis of young students' work we were on the right lines. It has been said that "no youth can be master," and that "where there is much to be developed it will be developed late," and, though the case may be granted of a student of exceptional endowment, it will not be the rule that the students will best interpret that which should grow out of lengthened experience of life and practice in the arts, and be forged out of the character and endowment of the artist. We have no doubt that many students would endorse our view. We should have expected that if such a scheme as that of employing art students were to be entertained full advantage would be taken of the artists who, with lengthened practice, have justified these claims to employment.

We must not forget that the public are too much inclined to accept proposals without weighing them, if launched with sufficient official backing. We have repeatedly urged in these columns the danger of the public, of municipal bodies, surrendering their independence of choice and judgment to propaganda coloured by passing fashions in favour of the very debatable conclusions of some official bodies as to what is good in art. Is it too much to hope that sooner or later the public will fit themselves to form their own responsible judgment in art matters, for, in spite of the thousand schemes to promote art, its only security lies in the faithfulness of the artist, and their judgment, exercised independently and intelligently by the public themselves—and that when they seek an artist, or artists, to decorate their buildings they may be safer in taking the choice which they too often surrender to experts and others back into their own hands, than when depending entirely on the endless organisations which desire to instruct them? It has recently been pointed out that committees are the least likely to secure the best art for us; and it behoves us at a time when democratic institutions are so much on their trial to prove their validity by the wisdom and rightness with which we exercise our citizenship in dealing with public matters. We say this in no hostility to any scheme to promote public wall decoration which takes due regard of the claims of the artist. But to found it on the cheapness of the students' work, and to excuse such a method by saying that it will be painted out in a few years, as some apologists have suggested is to assume that there are no artists of experience working independently who can execute such work. The fact is there are painters capable of the best work in this direction who can hardly find employment, and to whom opportunity is denied. In such a case, should work of so much importance as that of the decoration of certain wall spaces in the New County Hall be handed over to students without opportunity to others at all? These comments are necessary lest the public should think that we have achieved mural decoration when we have it not.

NOTES.

Unification and Registration.

THE straighttorward statement which the Royal Institute of British Architects has issued on Unification and Registration should do much to allay the anxieties of those members of the Institute who think that the privileges they have rightly earned by hard study and examination may be lost to them by the forthcoming proposals of the representative Unification and Registration Committee which was unanimously appointed to consider the subject. The statement which has just been issued by the R.I.B.A. (see p. 438) refers to the assumption of the opponents of unification that it implies (*a*) the advancement to the full privileges of the R.I.B.A. of all the outside architects of whatever qualifications, and (*b*) the loss by the Associates of all the prestige attaching to them as possessors of the hall-mark of examination. The scheme of unification will show how these two matters are intended to be dealt with, and we are glad to note that it is intended to take a postal vote on the subject so that every member of the Institute will have an opportunity of expressing his opinion. In this way we should in time know the views of the whole profession on the subject, and surely this should satisfy everyone.

The Kitchener Memorial.

IT is very satisfactory to note that the metalwork gates, &c., for this memorial have been placed in the hands of Mr. Bainbridge Reynolds, whose work is always endowed with much distinction and scholarship. No less personal because it avoids any "new art" or over-subjectiveness, his work yet seems to grow out of tradition and draws a strength from this which is often lacking in modern craftsmanship. A good craftsman must bring something very much more than his own personal equation only in order to sustain that quality which is distinctive of fine work. Only when it is built up on an appreciation formed out of the best traditional examples can it be altogether satisfactory. So much of modern craft work, for want of this wider apprehension, lacks style. No craftsman can afford to say that he acknowledges no master, neither school nor college, and that he has learned nothing from the past, because these are foundations on which the best work is set, which will unconsciously influence it, and are consistent with work of the highest originality.

Public Advertisements.

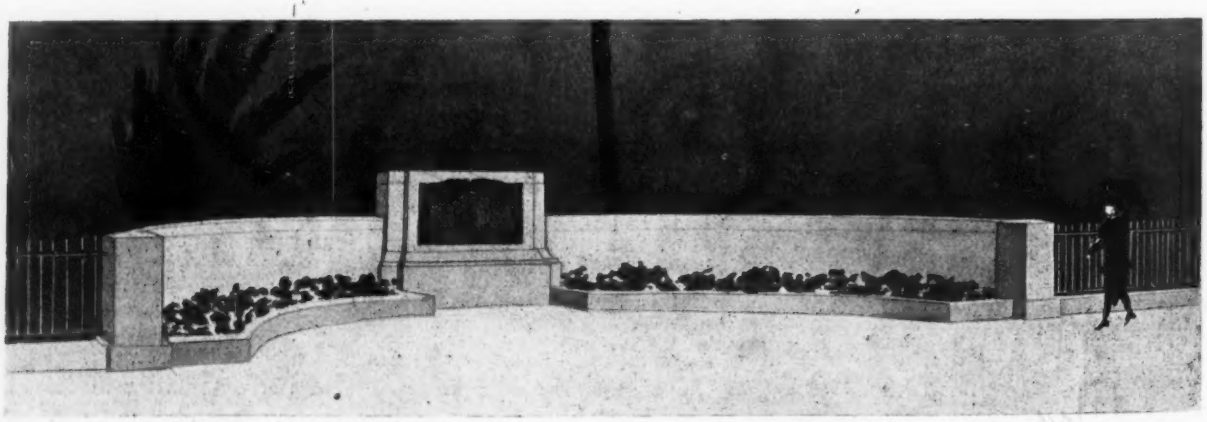
THE arguments brought forward in favour of extending the licence for public advertisements show that we have a long way to travel before the public will be able to follow any fine ideal as to the amenities of our surroundings in towns and villages. We have not the smallest doubt that thousands of people would welcome advertisements in permanent colour mosaics on the pavements of our towns and view with unmitigated pleasure the brilliantly-lighted advertisement signs such as enliven Piccadilly at night. The London Society has plenty of work before it whilst the public is being enticed by pavement publicity and the insidious efforts for a brighter London. It is certainly gratifying to learn that such large numbers of advertisements lining the course of our main lines of railway are being removed. The admirable work which is being done in posters, notably in the Underground Railway, is something to the good, and there can be little doubt that excellence of design in advertisements may have a valuable educative influence. But it rests with our town and country authorities firmly to check the abuses which arise in all directions from advertisements which are undesirable as to their kind and their placing.

The Place for Posters.

THERE is a good deal of special pleading and a bias towards particular commercial interests, rather than the wider public interest, in a good deal of the discussions as regards the character and display of posters. It seems to aim rather towards discounting the effect of the letter from Mr. John Bailey, which led to the discussion, than to any appreciation of the extent of the abuse. His main argument seems to us unassailable. He contends that streets, roads, open places, post offices, &c., are public property, and that no one ought to be forced to look at the pictorial assertions of advertisers, sometimes false and misleading, and displayed often on a huge scale to the disfigurement of the locality. As Mr. Bailey points out, the law protects us from assaults on our ears, and there is no reason why our eyes should have less protection. It ought to be agreed that anything which disfigures and is a loss to the amenities of the street should be prevented, because no private interest has any right to impose itself on us in such a way. If such a view were acted on, and we believe it is now held very widely, a great step towards the improvement of city life would be effected.

Imperial Arts League.

LORD PLYMOUTH presided on the occasion of the annual general meeting of this League, which took place at the Royal Academy on March 15. The report of the year's work testifies to the value and efficiency of the services it is able to bestow, and we are glad to learn of the increase in the membership and the steady growth of its work. It took up the battle against the absurd application of the "entertainment" tax to art exhibitions during the year, and was active in the defence of the artist's position. Its work is still hindered by the want of knowledge by artists of the value of the Society to themselves. They



Bermuda War Memorial Competition. First Premiated Design, by MR. F. LESSORE.

[This monument is designed to stand in the grounds in front of the Colonial Government Buildings, Hamilton, Bermuda. The stone would be granite, the central feature being about 7 ft. high. The total length is about 40 ft., and the cost does not exceed £1,000. The design is by Mr. F. Lessore, sculptor, of Charterhouse, London, E.C.]

Cast Iron Grille at St. Pol, France.
From a Measured Drawing by Mr. J. S. Hardie.

should join it for their own security, because it does for them many things so much better than they could do them for themselves. Anyone acquainted with the records of its labours will realise how much assistance it is to them. As a bureau of inquiry and information in regard to copyrights, agreements, and the many business matters which are touched by his work, its help is most serviceable.

The London Society.

At the annual meeting of the London Society, which Sir Aston Webb happily arranged to be held in the rooms of the Royal Academy, the two most important subjects mentioned were Ken Wood and the London Bridge arch. Both are works of preservation, and, as such, naturally take precedence of improvement schemes, which can generally afford to wait awhile; but with Ken Wood and the arch, particularly the latter, it is now or never. Public and private purses have been greatly depleted, but notwithstanding this a strong effort should be made to preserve what is held in trust for posterity. Dame Lena Ashwell, who spoke very warmly for the Arch, has joined the Committee formed to take steps for its preservation, which meets at the rooms of the Concrete Institute, and has in hand the arrangements for the forthcoming public meeting.

Vibration in Buildings.

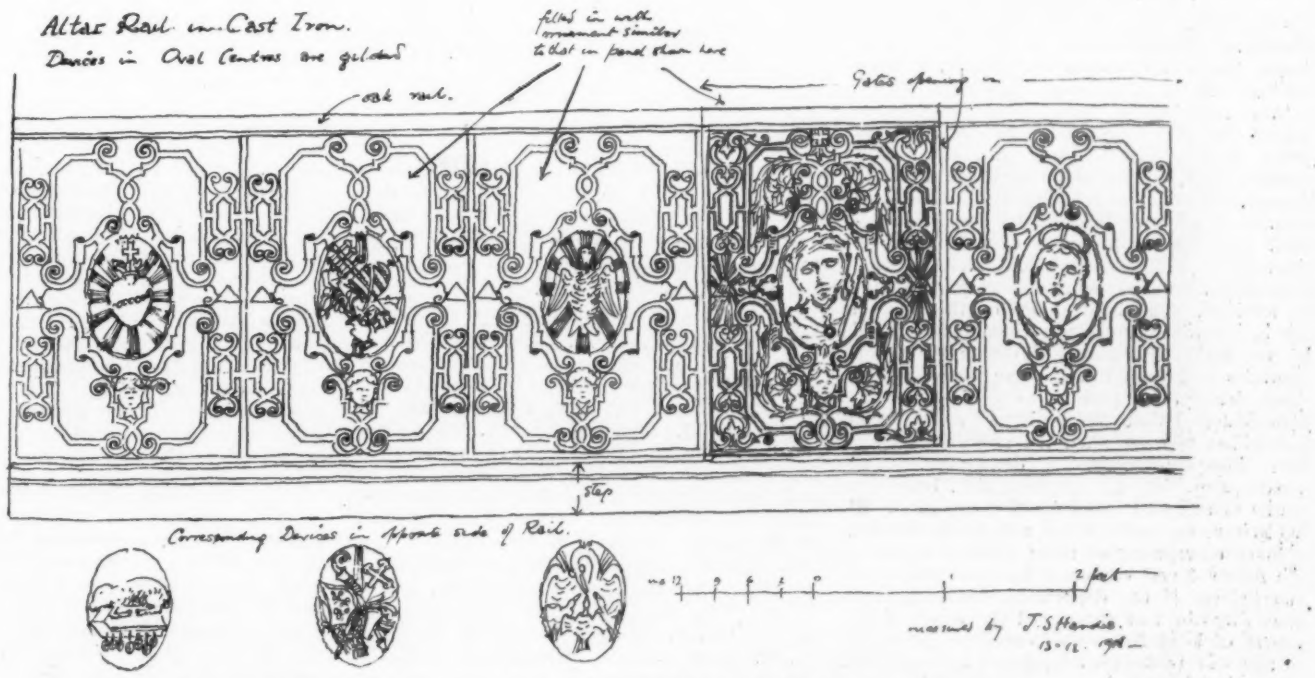
A correspondent asks for an explanation of the violent vibration experienced on the third floor of a building, which he describes as resembling an explosion, on the passing of a fire engine in the road outside. It is a little difficult without full data to give an adequate reason for the effect experienced. He suggests that the vibration over a bad road should have been absorbed in reaching the foundations below the basement. Sound, however, travels much better through solid materials than through other media. If the ground below the road were very compact, and therefore rigid, the vibrations would readily reach the walls through the foundations and be transmitted by them to the third floor, and if this floor were lightly constructed (say, with 7-in. joists) the oscillations produced might well be very marked. If the building were more or less isolated the vibrations might conceivably set up a rocking motion in a comparatively light structure which would make the effect very apparent at a high level. The explosive effect mentioned by our correspondent we can only attribute to the sudden nature of the shock due to some road inequality.

Reduced Output.

On page 455 we give an interesting article by Mr. W. E. Garnett, P.A.S.I., on "Reduced Output," from which it will be noticed that the causes leading to the lamentable state of affairs which existed at the end of December, 1920, have not been discussed; but bad results are shown. To attach blame has not been attempted, and this would be futile until all the causes—many of which we have already dealt with—are known. There is small cause for wonder that many projected schemes have been abandoned when it is shown that nearly one-third of the cost secures no return. A perilous descent is indicated in the progression table which is given, commencing with prosperity and ending with poverty.

The Chicago Fire.

It is to be hoped that some useful lessons may be learned from the great fire in Chicago on the 15th. A skyscraper, supposed to be fireproof, stood in the pathway of the fire, which attacked it in the twenty-first story and finally wrecked it, along with the entrance block of buildings between Van Buren-street, Canal-street, Church-street, and West Jackson Boulevard. Our schemes of fire-prevention are still our greatest asset; for, unless a fire can be checked at its very beginning it seems hopeless to cope with it in a crowded city unless some vacant land stays its progress as it did in Chicago.


Altar Rail in Cast Iron.
Devices in Oval Centres are gilded
filled in with ornament similar to that in panel shown here
oak rail.
Gates opening in
Step
Corresponding Devices in opposite side of Rail.
measured by J. S. Hardie.

Maurois Church, France. From a Measured Drawing by Mr. J. S. Hardie.

GENERAL NEWS.

Professional Announcements.

Mr. Mowbray A. Green, F.R.I.B.A., has removed from 5, Prince's-buildings, Bath, to 27, Queen-square, Bath.

The style and title of Messrs. Willink & Thicknesse has been altered to Willink & Dod. The address (Cunard Building, Liverpool) will remain as before.

Major Douglas Wood, F.S.I., A.R.I.B.A., the Housing Commissioner at Nottingham, in charge of the housing schemes in the ten Midland Counties forming the Regions E and F, is leaving Nottingham on March 31, when the Regional Offices finally close, and is taking up a special appointment at the Ministry of Health, Whitehall, S.W. 1.

Mr. Arthur J. Murgatroyd has taken Mr. James Hembrow, A.R.I.B.A., into partnership. The firm will be carried on under the old style of Mills & Murgatroyd, practising at 23, Strutt-street, Manchester, as architects and surveyors.

The Royal Archæological Institute.

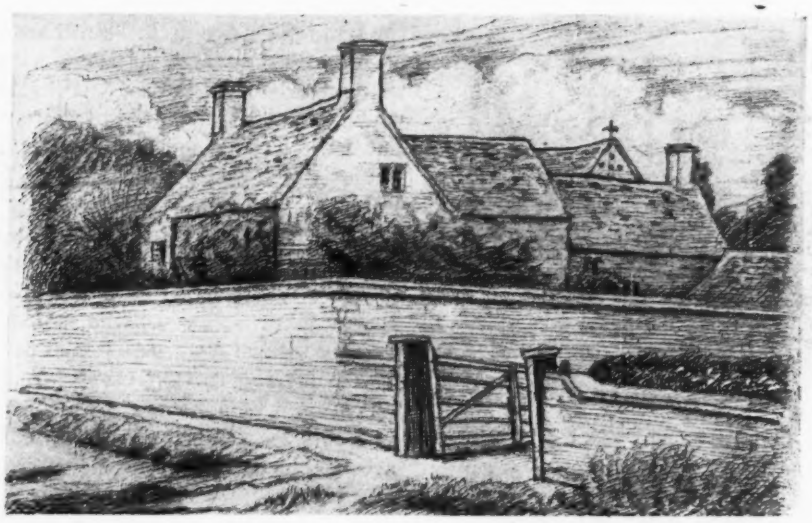
The summer meeting of the Royal Archæological Institute is this year to be held at Ripon, from July 19 to 26. The Honorary Secretary of the meeting is Mr. B. H. Cunnington, 33, Long-street, Devizes.

The Arch of Old London Bridge.

Replying to a question by Mr. J. J. Redding at a meeting of the Corporation of London last week, Mr. A. Stanley Stone, Chairman of the Bridge House Estates Committee, said while that Committee had given very sympathetic consideration to the subject of preserving the interesting and historical arch of old London Bridge discovered some months ago, it regretted it was not able to assist in the matter. Although the arch was situated on the freehold land of the Committee, the property had been let on lease, and the Committee had no right to interfere with the arch. There were insuperable difficulties in preserving the structure on its present site for public inspection. A special cellar would have to be constructed, with steps leading to it, and lights provided, which would mean recasting the whole of the leaseholders' building scheme. As to the removal and re-erection of the arch elsewhere, the opinion of those most competent to judge was that if it were removed its sentimental value would be destroyed. Furthermore, he was told the removal would cost about £7,000, and, as the Committee's funds were strictly limited to certain specified objects, no help could be rendered from that source.

Smoke Abatement.

A deputation organised by the Coal Smoke Abatement Society waited on the Minister of Health (Sir Alfred Mond) on Monday, to urge the Government to give legislative effect to the recommendations of Lord Newton's Departmental Committee on Smoke Abatement.—Sir Aston Webb, P.R.A., said the deputation represented a number of borough councils and learned, scientific, and health institutions and societies which were interested in smoke abatement and the maintenance of clean air. A great deal of the smoke from factories and commercial premises was unnecessary and might be avoided. The inadequacy of the general law in regard to smoke abatement was proved by the facts that many of the larger municipalities had been forced to apply to Parliament for special powers to deal with this nuisance, and that the Ministry's own Special Committee recommended the alteration of the law. The smoke was a demoralising and unnecessary evil. It injured health, buildings, works of art, and property of every kind. It led to immense waste of fuel, and the destruction it involved represented many millions a year.—Sir Alfred Mond expressed his sympathy with the objects of the deputation, and intimated that when he had considered the whole of the report of Lord Newton's Committee he would be able to consider the adoption of the suggested machinery for the abatement of the nuisance.



Farm at Lechlade.—From a drawing by MR. REGINALD HALLWARD.

OBITUARY.

Mr. James Henry Sabin, President of the Surveyors' Institution, died from pneumonia after a very short illness on Friday last. He became a member of the Institution in 1883, and was elected Professional Associate Member of Council in 1892. Retiring from the Governing Body in 1909 on being made a Fellow, he was again elected to the Council four years later, and became President in May, 1921. On only one previous occasion has a President of the Surveyors' Institution (Mr. T. Chatfeild Clarke, in 1895) died during his term of office. More than fifty years ago Mr. Sabin entered the office of Mr. E. J. Smith, who was President of the Institution in 1876, and the founder of the well-known firm of Smith, Gore & Co., of Westminster, who act as agents for the large estates of the Ecclesiastical Commissioners in the Northern and Midland Counties, the North Wales estates of the Welsh Church Commissioners, and several other important properties. At the time of his death Mr. Sabin was senior partner in the firm. He was a recognised expert on all questions connected with the management of land, and was the author of valuable papers on local taxation, the position of the tenant on the sale of agricultural estates, agricultural policy, &c., while his Presidential Address to the Surveyors' Institution in November, 1921, covered a wide field, and aroused great interest in both professional and agricultural circles. His death during his term of office will be severely felt by his colleagues on the Council of the Institution, and will inspire the deepest sympathy for the widow and family throughout a wide circle of professional friends.

The death is announced of Mr. Herbert A. Satchell, F.R.I.B.A., who died suddenly at Torquay on March 15. Mr. Satchell, who won the Royal Institute Essay Medal in 1888, had been a member for 34 years, and did valuable work on the Practice Standing Committee.

The death took place last week of Mr. D. T. Alexander, a Past-President of the Auctioneers' and Estate Agents' Institute.

The death is announced of Dr. P. Macgregor Chalmers, LL.D., F.S.A. Scot., of Glasgow, who carried out a great deal of restoration work, including Iona Cathedral, Paisley Abbey, Glenluce Abbey, the Chapel of the Isle of Whithorn, St. Monance Church, and Holy Trinity Church (St. Andrews). In addition to the restoration of ancient buildings, he designed a number of churches in Scotland, and many war memorials. He was Vice-President of the Glasgow Institute of Architects.

At the meeting of the Royal Institute of British Architects on Monday last, Mr. Arthur Keen (Honorary Secretary) announced the death of G. E. Holman (Fellow), V. A. Edlin, H. A. Emmett, R. G. Elwes, and J. M. H. Vasey (Licentiates).

COMPETITION NEWS.

Cairo.

The following have accepted the invitation of the Egyptian Government to take part in the final competition for the Qasr-el-Aini Hospital, Cairo, Competition:—Mr. E. Vincent Harris; M. A. Marcel; M. G. Lisch; Messrs. W. A. Pite, Son & Fairweather; Messrs. H. V. Ashley & Winton Newman; and Messrs. H. Percy Adams & Holden. Mr. J. W. Simpson, PP.R.I.B.A., is the assessor.

Label Design Competition.

Messrs. Crosse & Blackwell have organised a competition for a design for a label in colour for jam pots. The premium is 20 guineas. Further particulars may be obtained from the Design and Industries Association, 6, Queen-square, W.C. 1. Sending-in day, April 3.

Henry Saxon Snell Prize.

The Henry Saxon Snell Prize will this year consist of 50 guineas and the medal of the Institute for an essay on "Improvements in the Sanitary Appliances and Fittings for new Housing Schemes, having regard to Efficiency and Economy." Sending-in day August 31. Further particulars from the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.1.

Auckland.

The second set of answers to questions in the Auckland War Memorial Competition gives the following information:—An unfortunate error occurred in the requirements as set out (1) in the Conditions, and (2) in the disposition of the various halls, etc., set out in the answer to question 7, in the omission of a hall required for foreign zoology. The answer to question 7 is amended by the insertion in the Schedule on the first floor of a hall for foreign zoology, 130 ft. by 60 ft. This Schedule requires amendment as to first floor accommodation by the addition of the hall described as the central hall or vestibule. Competitors are at liberty to vary the arrangement and areas to meet the exigencies of planning and design.—There is no objection to top lighting for the herbarium.—Treatment as to vistas is left to competitors within the limitations imposed by the Conditions.—The memorial must be planned so as to utilise the northern half or thereabouts of the site.—The building will be approached from the proposed roads indicated by dotted lines on locality plan, with the entrance facing north.

Other Competitions.

Other competitions still open include the following (the dates given are, first the sending-in date, and second the issue of *The Builder* in which full particulars were given):—Auckland war memorial (June 30; Sept. 2, 1921); Trujillo (Peru) monument (June; Jan. 13); Colour Competition (May 1; Feb. 17); Dundee war memorial (April 30; Jan. 6).

CORRESPONDENCE.

Registration and the Rights of Associates.

SIR,—As officers of the R.I.B.A. Defence League we have been considering Clause 28 of the Charter of 1887, which states that although Associates can take part in a debate on any proposal to alter our constitution "no Associate shall be entitled to vote in the making and adapting, altering, revising, suspending, or rescinding of any By-law." Consequently, if the scheme of the Unification and Registration Committee were submitted to the full body of the Institute for approval no Associate would have a right to vote, and Fellows alone would decide it. At the present time there are about 962 Fellows and 2,173 Associates, and to allow such a scheme, in fact any scheme of drastic alteration to our constitution, to be settled by the Fellows alone would, we submit, be grossly unjust to the majority of the men in the Institute. Consequently, we propose at an early date to submit a requisition for a special general meeting to express an opinion that the portion of the By-law quoted above should be deleted from our Charter at the earliest possible date, and in doing so we shall rely for support upon all members of the League and also upon all others who may differ from us as to the proper procedure towards Registration but who will probably support a proposal which, we submit, should recommend itself to every member of the R.I.B.A.

ALFRED W. S. CROSS, V.P., R.I.B.A.,
Chairman.
H. D. SEARLES WOOD, V.P., R.I.B.A.,
Vice-Chairman.
GEORGE HUBBARD, SYDNEY PERKS,
Honorary Secretaries

Registration and Unification.

SIR,—Is it not time that procrastination on the part of the architectural bodies and their members cease, and that sweet reasonableness prevail? I think all with the exception of a small minority must agree that registration will be beneficial and protective to all architects, those eminent and those less so. The more shining lights may justifiably feel some mortification in the fact of an inferior class of genius being recognised as architects, but this applies similarly to all other professions in the first instance upon registration, and the wise man will see that it will soon be obliterated by the efflux of time.

It is some years ago that the following incident happened, and it has been impressed on my memory ever since: I had occasion to seek lodgings in a town where I had taken an appointment as architect's assistant, and during the course of conversation with the landlady she informed me her son was a "harchitect," and suggested we might be of mutual benefit to each other. I was eventually introduced to the son, who turned out to be an awkward lad of about seventeen and who produced for my inspection a "prospective" drawing which he had copied from something else with the aid of a drawing pen and a ruler; I should imagine the lad's real job was blowing a whistle in a builder's yard.

I think all fair-minded architects will agree that registration would at least protect and raise the name of "architect" to a higher plane, and that unscrupulous persons would not be allowed to use it. I do not see that it matters whether unification takes place or not so long as the *bona-fide* architect acquires the protection he justly deserves.

ALBERT SWEENEY.

London.

Labour-Saving House for a Country District.

SIR,—I notice in your issue for the 17th instant a letter, signed "Estate Clerk of Works," drawing attention to the need for an economical labour-saving house for country districts where no gas, electricity, or public water supply is available. I have not seen a house of the size he mentions, but I have seen plans of smaller houses of the bungalow type which appear to me to satisfy his requirements, and I should think there would be no difficulty in adapting these plans to a larger house at a reasonable cost.

Chelsea. J. LITTLEWOOD.

Restoration of the Lady Chapel, Sherborne Abbey.

SIR,—Being in the neighbourhood of Sherborne recently, I called at the Abbey and was shown over the works in progress by Mr. Carôe's genial representative. Let us hope steps may be taken in the near future to restore the nave to its original length by rebuilding the three or four bays that were destroyed after the dissolution of the Monastery in the 16th century.

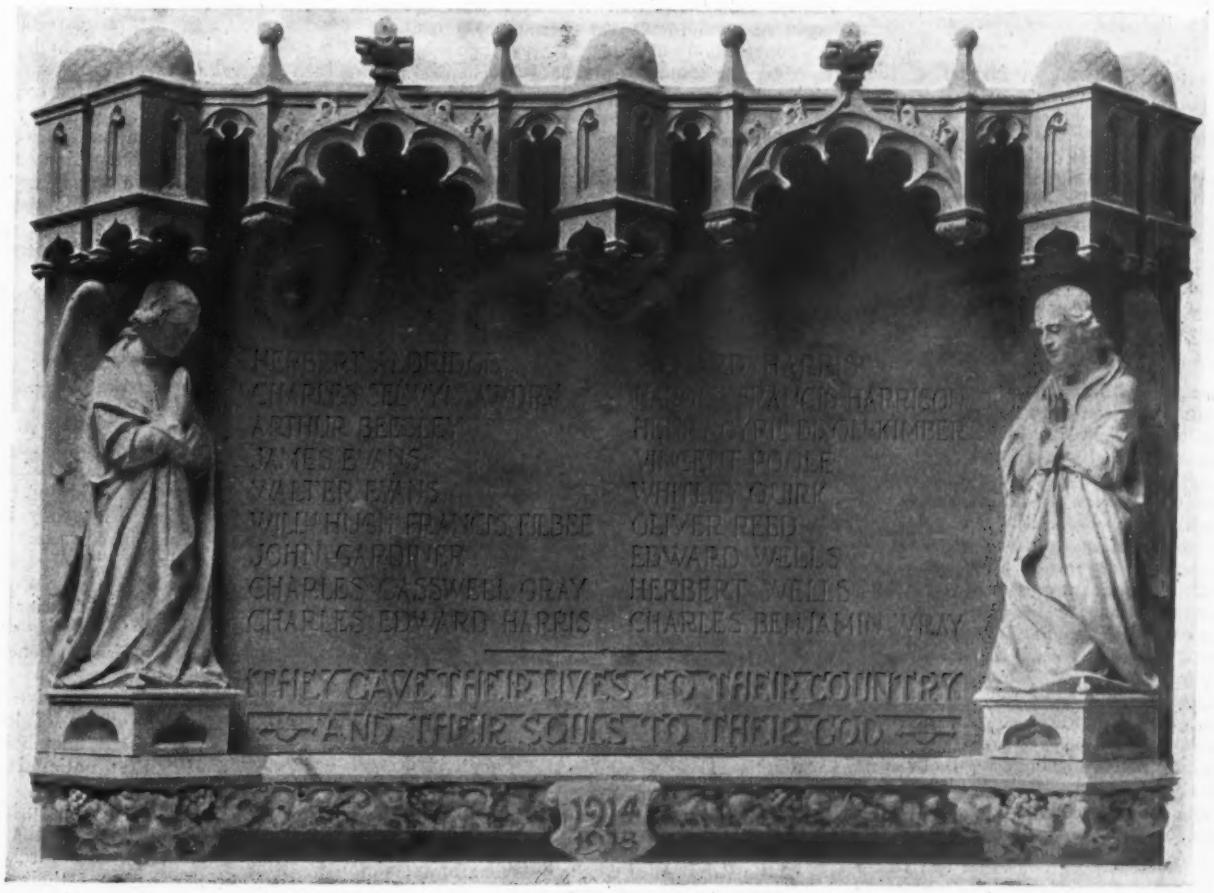
Weston-super-Mare. EDWARD VALE.

Other Letters.

Other letters are given on pp. 442 and 456.

Architects' Working Drawings.

On March 15, a students' evening was held at the Exhibition of Architects' Working Drawings in the Galleries of the Royal Institute of British Architects. Mr. A. J. Davis and Mr. C. H. Gage were present and explained the special points of interest in the *Morning Post* building, and Mr. Dennington (representing Mr. Ralph Knott) gave information about the new County Hall. The Board of Architectural Education has made arrangements for holding the exhibition annually.



Hitcham (Bucks) Church War Memorial.

SIR BANISTER FLETCHER, F.R.I.B.A., Architect. MR. C. L. HARTWELL, A.R.A., Sculptor.

[This mural tablet is erected in the 13th century parish church at Hitcham. It is in Caen stone, and measures 4 ft. by 2 ft. 9 ins. The memorial was designed by Sir Banister Fletcher, F.R.I.B.A., F.S.I.; the figures are the work of Mr. C. L. Hartwell. A.R.A.; the masonry was carried out by Messrs. Blundell, Shephard & Monks.]

UNIFICATION AND REGISTRATION.

WE have received the following communication from Mr. Ian MacAlister, Secretary, R.I.B.A. :—

"The Council has been informed that a good deal of misunderstanding exists, particularly among members in the provinces, as to the steps that have been taken in furtherance of the policy of unification and registration and as to the present situation. It has therefore directed that a short statement should be issued for the information of members.

"It will be recalled that ever since the year 1905 the R.I.B.A. has been pledged to a policy of statutory registration, and various schemes have been prepared in order to enable a registration Bill to be presented to Parliament with reasonable prospects of success. During this period the provincial societies generally have lost no opportunity of repeating their conviction of the urgent necessity for statutory registration, and their anxiety to assist in furthering the registration policy.

"At the end of the war the R.I.B.A. Council was again assured, through the resolutions of the provincial bodies and through the medium of the professional Press, that the members of the R.I.B.A. and of the allied societies were as firmly convinced as ever of the necessity for registration. At the same time the opinion was generally expressed that the unification of the profession was an urgent necessity in the interests of architects generally and also as a means towards the attainment of statutory registration.

"It is clear that by linking up all sections of the profession and giving a central council power to act on behalf of all, the action of the profession in public matters must be enormously strengthened. Not only is the question of registration affected but also all matters of architects' charges, conditions of competition, the relations between the profession and public bodies, action in legal cases, the regulation of professional practice, and the important matter of education. It is obvious that when legislation affecting the profession is dealt with in Parliament or when Government departments seek the services of architects a united profession can exercise influence and pressure that would be impossible in the absence of unity of action. All the competent advice that has been given on the question of registration by Act of Parliament goes to show that united action is essential to success, and therefore the Council is convinced that unification must be the first step.

"The Council accordingly invited the whole profession to form a completely representative body for the purpose of drafting a scheme for the unification and registration of the profession. This step was hailed with unanimous approval, and the Committee was formed. It contained representatives of all classes of the Royal Institute and delegates appointed by the council of every architectural organisation of any importance in the Empire. The Society of Architects, the Architectural Association, the Official Architects' Association, the twenty allied societies in the United Kingdom, the ten allied societies in the Dominions, the Assistants Union, and the Ulster Society of Architects all took part in the formation of the Committee, and a general meeting of unattached architects also elected representatives. The resulting body of 66 members was the most completely representative body of architects of the Empire that had ever come together.

"The Committee began its work in July, 1920, and after considerable discussion it issued an interim report on May 12, 1921, for the consideration of the Councils of the R.I.B.A. and of the Society of Architects. This report, which had the almost unanimous support of the whole Committee, was, in effect, a recommendation that unification of the profession should be effected by the inclusion of qualified architects in the R.I.B.A. rather than by the formation of a new and independent outside body to govern the profession.

"The Committee requested the Councils of the R.I.B.A. and of the Society of Architects to enter into negotiations and to find out whether, as a first step, a basis could be found for the absorption of the Society into the membership of the R.I.B.A. This is the stage which has now been reached. Committees representing the R.I.B.A. and the Society have discussed a provisional scheme, and a Committee representing the Associates is now discussing this scheme in detail with a view to its approval or amendment by the Associates. The Licentiates' Association has been considering how the interests of the Licentiate class would be affected.

"No binding decisions of any kind have yet been made. Alternative suggestions are being carefully weighed by the various committees, and exhaustive discussion and the consultation of many interests will be necessary before any definite conclusion can be arrived at. It will only be at the termination of these discussions that the general body of the R.I.B.A. will be asked to consider the Council's ultimate conclusions and give a definite verdict upon them. Before they are asked for that verdict the fullest and most detailed information will be supplied to them and ample notice will be given of the meeting, or meetings, at which the subject will be discussed. As the matter is one deeply affecting the interests of members, it would not be fair that the decision upon it should be made at a meeting in London, which could only be attended by a very small proportion of the provincial members, who form the great majority of the R.I.B.A., and it is the Council's intention to take a postal vote on the subject so that every member of the Institute will have an opportunity of expressing his opinion.

"In the meantime the Council desires to make a special appeal to members to suspend judgment until a scheme has been prepared for their consideration by their own representative committee, and to ignore the premature agitation which has been set on foot by a certain number of members who are attacking proposals that have not yet been worked out by the responsible committees or placed before the members. It is not by the vote of some 6 per cent. of the corporate members at a specially-requisitioned meeting in London that this great and complex question can be settled, but by the considered opinion and the deliberate vote of the whole body of members when a scheme is finally placed before them.

"It appears to have been rather generally but groundlessly assumed by the opponents of unification that it implies :—

"(*a*) the advancement to the full privileges of the R.I.B.A. of all the outside architects of whatever qualifications; and

"(*b*) the loss by the Associates of all the prestige attaching to them as possessors of the hall mark of examination.

"The scheme of unification (when issued) will show how these two points, which are of the greatest importance, are intended to be dealt with."

ARCHITECTS AND NATIONAL HOUSING.

THE following correspondence has passed between Sir Charles T. Ruthen (Director-General of Housing) and the Council of the Royal Institute of British Architects :—

"March 16, 1922.

"Dear Mr. President,—Referring to the resolutions passed by the Council of the Royal Institute of British Architects dealing with my address to the Society of Architects, you may have seen in the press my reply to a letter from the Secretary of the National Housing and Town-Planning Council, in which I pointed out that some parts of my address had been entirely misunderstood, and explained the extent to which I intended my criticism of the part taken by architects in the Government housing scheme to apply. You will believe that it was with great regret that I found my words interpreted as throwing upon the architectural profession a general degree of responsibility, and subjecting them to an extent of criticism never intended by me.

"The criticism which I had intended to make was naturally not made without cause; there are unfortunately clear evidences that the Government did not receive in certain cases the help which they were entitled to expect from some of the architects engaged on housing schemes, and much time was occupied by the official staffs in eliminating needless and extravagant provisions.

"I am very willing to meet the Council of the Royal Institute of British Architects if that be their wish. I could do so if invited on March 20, or at the following meeting; but in view of the explanation which has already been published, and my reiterated desire that architects may continue to be associated with housing work, perhaps you may feel, as I do, that no good purpose will be served by embarking on a discussion of the extent to which certain architects proved to be inexperienced in a special class of work and thus added a quota to the already inflated cost which had to be contended with. In any case I need scarcely assure you, as Director-General of Housing, of my recognition that in many cases architects loyally assisted the Government in their struggle for economy, and of my entire goodwill towards the members of the Institute and the architectural profession generally.

(Signed) "CHARLES T. RUTHEN.

"Paul Waterhouse, Esq., P.R.I.B.A."

"March 22, 1922.

"Dear Sir,—The letter which you addressed to the President R.I.B.A. under date March 16, 1922, was laid before the Council on the 20th instant, and by resolution then passed I was directed to say in reply—

"(1) That in thanking you for your assurance that parts of your address had been misunderstood the Council specially welcomes your explanation that you had no intention of 'throwing upon the architectural profession a general degree of responsibility.'

"(2) That they receive with satisfaction your recognition of loyal assistance rendered by many members of the profession in the national struggle for economy.

"(3) That while naturally pledged to continue to deal, as in the past, with all questions requiring disciplinary action within the ranks of their own members, they concur in considering that a further discussion on the lines to which you refer is unnecessary.

(Signed) "IAN MACALISTER,
"*Secretary*,

"Royal Institute of British Architects.

"Sir Charles Ruthen, O.B.E."

BUILDING TIMBERS.

At a general meeting of the Royal Institute of British Architects held on Monday last (Mr. Paul Waterhouse, President, in the chair), Mr. H. D. Searles-Wood read a paper dealing with the building timbers of the Empire, in the course of which he said the Timber Committee of the Imperial Institute had been engaged for five years in investigating the resources of the Empire, during which time it had considered over 90 different woods, specimens of which could be seen at the Imperial Institute. Of these, 40 have been reported as suitable for the building and furniture trades. In conjunction with the Empire Forestry Association it was proposed to bring together samples of Empire timbers in a room devoted to timber exhibits only, so that those interested could see specimens of each kind of timber side by side for comparison, in order that users of timber could ascertain the varying characteristics of the woods from different parts of the Empire and obtain full particulars of each timber. It was also under consideration to form a representative collection of those new timbers which the Committee had selected and send them to important centres in the country.

The home-grown timbers of the United Kingdom were alder, ash, beech, birch, box, chestnut, elm, silver fir, holly, hornbeam, larch, lime, oak, pine, poplar, spruce, sycamore, walnut, willow and yew. With regard to the soft woods, the timbers commonly used and required by architects which could be grown in the United Kingdom were red wood, white wood, and American yellow pine. Scots pine was the only wood used in many of the ancient Scottish castles, where it had withstood the wear and tear of centuries and remained sound until the present day. Of the hard woods, at one period British timber held a world-wide reputation. In home-grown oak there were two main varieties—white and Turkey. Turkey oak was in many respects similar to American red oak, and was of practically no value. Home-grown white oak varied enormously in texture and value, according to the district in which it was grown. For instance, oak from a county like Cornwall was small and coarse, and suitable only for wheelwrights' work. Oak from Sussex was splendid, but inclined to be hard. Oak from Northamptonshire, parts of Essex, Suffolk, Oxford, Lincoln, and so forth was of good size and mild in texture. Home-grown white oak was in demand for many classes of heavy work, but it also supplied beautiful panelling.

When wood grew old it became impregnated with waste products and became darker in colour. If two samples of English quartered oak were compared it would be seen that the one which was cut from an old tree was much darker and richer in tone than the one cut from a young tree. Some of those woods were still used for certain work, but for various reasons foreign timber had, before the war, largely displaced that of home growth, and several kinds of wood that had from time immemorial enjoyed a high reputation for strength and durability and beauty of finish were neglected by architects. Foreign woods, sometimes of distinctly inferior quality, placed upon the market in an attractive manner, came into fashion and the more solid British product was neglected. Although the importance of British oak was a tradition, architects had refused to specify British oak for panelling, flooring, and other purposes on the plea that it was unsuitable and inferior to wood of foreign growth, although roofs, staircases, and panelling of undoubted British oak were the features of many old English churches and houses, where they had stood the test of centuries. Owing to the heavy cutting during the war, the stock of growing timber in the British Isles was never lower than at present. Of many timbers there was bound to be a shortage for many years, but oak, elm, ash, poplar, willow, hornbeam, sweet chestnut, beech, birch, sycamore, alder, pine, spruce, larch, and silver fir were trees that would provide a large quantity of timber for building purposes.

It was essential that the timber resources of the United Kingdom should be increased, but if timber must be grown it must be on business lines, and in time the National Forest Service and the privately-owned forests must be self-supporting and capable of producing a dividend on invested capital. To help in this, users of wood should insist on home-grown wood being used wherever possible, and architects were especially asked to see to that when specifying for buildings. The architect's difficulty in regard to the use of home-grown timber for building purposes was the lack of "availability" due to the defective organisation of the home-grown timber market, and to lack of "reliability" due to bad afforestation. One of the chief points was the defective transport facilities of the country, and until that was thoroughly overhauled perfect organisation in other directions would be heavily discounted. It was essential that home-grown timber should be put on the market in a mature condition, properly graded and in recognised standard scantlings marked with the year of felling, properly seasoned and of good quality, sold in yards which were well situated for transport, and in sufficient quantity to supply a reasonably large demand. The question of soft woods was more urgent than that of hard woods. Forests were being depleted in Europe and America, and immature and dead timber was finding its way on to the market in increasing quantities.

The best timber for building purposes was the Scots fir (*pinus sylvestris*). It grew in the United Kingdom from 60 to 120 ft. in height, and with trunks 1½ to 3½ ft. in diameter. It was imported from Northern Europe under various names, such as red and yellow deal, redwood, and deal with the names of various ports as prefix. The use of the word "fir" in connection with that wood should be discontinued, for it had nothing to do with the fir tree. As this timber was the standard on which the constants in our formulæ were based, and the scantlings of the various converted timbers were cut in the search for new sources of supply for soft woods for building purposes, *pinus sylvestris* had been used as the control for the comparison of strengths. Most of that wood came from the Baltic and White Sea, and until the European forests were more cut it would be difficult for the Empire timber to compete in price, as freights from Eastern Canada in normal times were from 20 to 30 per cent. more than from the White Sea; and 25 to 50 per cent. more than from Sweden, Petrograd and Riga. From Western Canada freights were more than double than from Eastern Canada. When freights became more equal, then the Pacific mills would lay themselves out to cater for the English markets. At present from 1 to 2 per cent. only of their output came to Europe.

Canada.

From Canada the principal soft woods were spruce, Douglas fir, western hemlock, and white pine.

Douglas fir (*Pseudotsuga Douglassii, Carr.—P. taxifolia, Britton—P. mucronata, Sud*), was known under a variety of names, e.g., Oregon pine, British Columbia pine, British Columbia fir, red fir, yellow fir, and Douglas spruce. Its average height was from 150 to 255 ft., with a diameter of from 3 to 6 ft. Two forms were distinguished, viz., the mountain form, and the coast form. The timber exported was said to consist almost exclusively of the coast form. The wood was one of the hardest, heaviest and strongest of Canadian coniferous timbers, and, when properly seasoned, was fine, sound, and clear. The sapwood was narrow, and the heartwood varied in colour from light yellow to a decided yellow tinge. The wood was usually of uniform growth and comparatively free from knots and resin. The average weight of the dry wood was approximately 28 lb. per cubic foot. Douglas fir was obtainable in very large dimensions, sticks 100 ft. and over in length and 2 ft. square being readily supplied by the mills in British Columbia. This fact, combined with the strength, durability and lightness of the timber, and the ease with which it could be worked, rendered Douglas fir of special value as a structural timber for railway cars, piling, docks, building timbers, bridge and trestle timbers, ships and barges. It was also suited for sashes and doors. As inside finish (e.g., in the form of veneer), Douglas fir was considered to possess special qualities in its hard surface, beauty of grain, freedom from warping and shrinking, and ability to take stains and varnish. It did not take paint well, as the grain showed through. There was no reason why properly-seasoned Douglas fir should not be as free from decay as any Baltic timber or pitch pine.

The term "southern pine" embraced several species of timber, of which long leaf or pitch pine was the most familiar to English users. Most of the wood required in "timber" sizes 12 × 12 and 17 × 17, used in Europe since the gradual falling-off of Baltic fir timber, was southern pine. Loblolly was disliked generally. The disadvantage of pitch pine was its inherent tendency to shrink, even if planed some years after import. It was harder and stronger in tensile strength than Baltic fir. Owing to its length, generally averaging 30 ft., it was a most useful timber for carpenters' work. Douglas fir could also be obtained in long lengths, and was more regular in strength.

British Columbia spruce, also known as silka, silver or tideland spruce (the largest of Canadian spruces), familiar in the English market for many years, was now one of the best known of Canadian timbers on account of its extensive use in the manufacture of aircraft during the war. The straight, even grain, toughness, elasticity, and lightness of the wood (20 lb. per cu. ft., kiln dried), together with the long, clear lengths in which it could be obtained free from knots and other blemishes, established it with few rivals for aeroplane work. The timber was white, with a fine silver sheen, and was free from resin, and without noticeable taste or smell. It worked easily and smoothly, did not warp, took paints and stains well, and had good nailing qualities. The wood was used for a great variety of purposes in Canada and Western America—notably for the inside and outside finishing of buildings. Only the finest selected timber was used for aircraft work, and the remaining material should find a ready market for building purposes, for which the perfect qualities required for aeroplanes were not so essential.

Western hemlock was not so well known here as in Canada. It constituted 18.3 per cent. of Canadian commercial timber, and, like the others, grew to a large size. Even in Canada its good qualities and value were not so well known as they would be. For ordinary building purposes, it was equally as useful as Douglas fir. It had 88 per cent. of the strength of its biggest brother, and was not so suitable for the heaviest type of construction, but it made excellent siding, flooring, ceiling, scantling, inside joists, &c. For sash and door fixtures, turned stock, panelling, &c., it had exceptional merit. Western hemlock was usually light in colour, and contained no pitch or resin. It dressed to a smooth, satin-like surface capable of taking a very high polish, and was not easily scratched. Sawn slash grain it showed a very handsome figuring. Western hemlock took paint well, and for enamel finish was perfect. Edge-grain hemlock flooring had proved invaluable. It hardened with age, and there was an instance on the Pacific coast where it had been down for fifty years, and was now so hard that it was difficult to drive a tack in.

Spruce formed the bulk of the timber exported to this country from Eastern Canada, white spruce heading the list; it was gradually taking the place of white pine, for which it was a good substitute for many purposes. It should be more extensively used in this country for carcasing and general construction work. Its weight was 25 lb. per cubic foot.

Red spruce from Quebec and the maritime provinces was used for the same purposes, and was preferred for joinery. Its weight was 32 lb. per cu. ft.

Black spruce was the strongest and most durable of the spruces, and should find wider application in this country for carcasing and construction work generally. Its weight was 28 lb. per cu. ft.

The valuable white pine, also known in this country as yellow or Quebec pine, stood second

among Canadian timbers in 1919, both as regards production and value. Over 70 per cent. of the cut was obtainable from Ontario. The wood was light, soft, straight-grained, free from resin and easily worked; it held nails well. Though not strong relatively, it was probably used for a greater variety of purposes than any other Canadian timber. Its chief uses were in construction work where strength was not essential. It was a favourite material for deck-planking, sashes, doors and finishings, while the slabs and edgings resulting from conversion were manufactured into shingles and laths. Under the name of "cork pine," the wood was extensively employed in making matches. The cheaper grades were largely used for boxes and crates. In the United Kingdom, white pine was well known as a most valuable wood for engineers' "patterns" on account of its even and uniform grain and easy working. Its weight was 24 lb. per sq. ft.

Eastern hemlock (also known as "hemlock spruce" and "hemlock fir") stood high among Canadian timbers in point of quantity cut. It was much inferior to British Columbia western hemlock. The wood was reddish brown, fairly stiff, but rather harsh and liable to splinter; it held nails well. A large part of the production was used locally for frames of buildings, joists, rafters, boxes, crates, concrete forms, sleepers, poles, and for other purposes where a first-class wood was not essential.

Australia—Tasmania.

The principal commercial woods which had been exported from Australia included jarrah, karri, tuart and wandoo from Western Australia; and ironbark, grey gum, tallow wood, blackbutt, spotted gum, blue gum, stringybark, ash and swamp gum, and turpentine, mainly from New South Wales and Tasmania. Many of those woods had been used for piling, heavy construction work, railway sleepers and wood paving. Other timbers, e.g., black bean, blackwood or fiddleback, rosewood, silky oak, were also highly valued for decorative purposes, though not so well known.

Jarrah was restricted to the south-western section of Western Australia, and in this country was probably the best-known timber of the Commonwealth. It varied from light brick-red to dark-red, was straight grained (sometimes wavy), split easily in the direction of the grain, was of medium hardness, and worked easily and well; it was occasionally figured. The wood was used extensively in Australia and elsewhere for bridge, wharf and house construction, railway sleepers, telegraph poles, and in all branches of carriage and wagon work. It had been largely exported to India and South Africa as railway sleepers, and in this country was well known for construction work and as paving blocks, though for the latter purpose it was not so satisfactory under present conditions as Baltic timber. It was a fine cabinet and furniture wood, and an admirable material for high-class joinery, such as window frames, doors, staircases, &c. It must be well seasoned, however, or joints were apt to gape. Its weight was 51 lb. per cu. ft.

Karri was also a Western Australian timber. It was often difficult to distinguish from jarrah, but it was considerably stronger than that wood, chiefly on account of the interlocked grain, which also rendered it more difficult in working; usually it was also lighter in colour. Karri was very suitable for bridge girders, beams, joists, &c.; and had been largely used in England for railway-carriage scantlings and telegraph-pole arms. It was fire-resistant, and could be obtained in very large sizes. Its weight was 58 lb. per cu. ft.

Sudney blue gum, a native of New South Wales and Queensland, yielded a hard red timber of medium weight (46 lb. per cu. ft.), which should be more widely known in this country. It was straight grained, open, easy to work and durable, and gum veins were rare. It was used more particularly in coach and wheelwrights' work, and to a less extent in building construction, shipbuilding, paving blocks and sleepers.

Stringybark, which occurred in all the eastern States, and Tasmania, had been used in many parts of the world for sleepers, piling and heavy construction work. The wood was fissile, moderately hard and tough, and of a pale brown colour. The sapwood was liable to attack by borers, and should be rejected. In Tasmania the timber was used extensively for joinery, cabinet work and internal fittings, for which purpose it was well suited. Its weight was 46 lb. per cu. ft.

The timbers furnished by the ash group resembled in many respects those of the genus Fraxinus (ash). Several valuable timbers were concerned, of which the best known was the mountain ash or Tasmanian oak, occurring in New South Wales and Tasmania. In its strength, resilience and bending properties, the wood was very similar to the English ash, for which it formed an excellent substitute. In New South Wales it was much valued. In Tasmania it was largely used for furniture, office fittings, and decorative work, and should be of interest to motor-body builders. Its weight was 41 lb. per cu. ft.

Blackwood, obtainable from all the eastern States, was a decorative wood reddish-brown to dark brown in colour, with golden brown bands, and often a curly figure and mottling; the "fiddle back" variety had striking parallel dark stripes. It finished well with a satiny sheen, took a good polish, and was a magnificent timber for cabinet work. It was extensively used locally for internal fittings of railway carriages, shops and offices, for furniture and similar purposes, and was well known in this country. Its weight was 47 lb. per cu. ft.

Raspberry jam wood was a very hard, rich crimson or purplish wood, with an odour of raspberries. It had a close, smooth grain, and was excellent for turning and ornamental work. It had been used locally for posts and other outside work on account of its durability, but it was too valuable for such a purpose. Its weight was 62 lb. per cu. ft.

Black bean, occurring in New South Wales and southern Queensland, was another fine cabinet timber of moderate hardness. It was of various shades of brown, with dark stripes and mottling, straight-grained, planed easily with a smooth surface, and polished well, but required careful seasoning. It was employed locally in all forms of cabinet and decorative work, doors, &c. Its weight was 47 lb. per cu. ft.

Five protaceous woods were stated to be marked in Sydney as "silky oak." Important varieties were derived from *Orites excelsa*, R. Br., and *Grevillea robusta*, A. Cunn., the timbers of which were similar. Both timbers were strong, durable and light-coloured, with a grain and handsome flecked figuring ("slash") resembling oak. They were suitable for office and shop fittings and for general joinery work.

Australia possessed few, if any, coniferous soft-woods available in sufficient quantities to warrant any considerable export trade after supplying local needs. A number of indigenous "pine" timbers, however, were utilised in the Commonwealth. Huon pine, restricted to Tasmania, yielded probably the finest soft-wood on the Australian market. It was pale yellow, fairly close and straight grained timber, with little figure. It had excellent working properties, and was used locally for every description of joinery and cabinet work. Its weight was 33 lb. per cu. ft. King William pine, another Tasmanian timber, produced a soft, pale-pinkish timber, somewhat resembling Californian redwood in appearance and properties. It was specially suitable for mouldings, skirtings, and similar forms of joinery where strength was not essential. Its weight was 21-24 lb. per cu. ft.

New Zealand.

He was informed that New Zealand had no wish to cultivate an export timber trade, as all the timber produced could be absorbed locally.

India.

Apart from teak, overseas timber exports from India had been relatively small. It seemed probable, however, that with the improved means of extraction and transport and satisfactory seasoning and treatment of the woods produced the greater part of the needs of the country could be supplied from local forests (notably those of Burma), and leave available a surplus of valuable "jungle-woods" (i.e., timber other than teak) well suited to the requirements of overseas markets. In this country, in addition to teak, East Indian rosewood or blackwood, Andaman padauk, Eng, and Moulmein cedar were the best known; while less familiar timbers were East Indian walnut, gurjun, pyinma, Burma padauk, and thatka or Moulmein mahogany. In America, teak, Andaman padauk and rosewood were well known, and East India walnut, also known as koko or kokko, black chuglam, white chuglam and Andaman marble-wood had also been imported. There would appear to be little doubt, however, that, provided the woods could be exported in fair quantities and at a reasonable price, the intrinsic merits of a considerable number of Indian woods would secure for them a valuable market in this country.

The valuable Burmese wood, eng (or in), together with gurjun, thingan, and sal, belonged to Dipterocarpaceæ—one of the most important of timber-yielding trees in the East. The wood was closely allied to Siamese yang, and had been known in this country for many years, and used to a considerable extent for cheap furniture. Unfortunately, it had frequently been marketed as eng "teak," causing disappointment to users of true teak, from which eng was quite different. The heartwood was red to red-brown, with a strong aromatic smell when first cut. The wood was durable, hard, and straight-grained, with a firm, close texture which rendered it very suitable for flooring. It was excellent for interior decorative work (panelling, &c.), and good results had been obtained when using it for heavy indoor constructional work. The timber, however, must be well seasoned, and was not recommended for outdoor work. Nails caused the production of a black stain when the wood was exposed to the wet, as in the case of oak. In India, eng was largely used for building purposes, boats, carts, and furniture. Large supplies of the wood were available. Its weight was 54 lb. per cu. ft.

Gurjun kanyin was one of the best of the Indian species of Dipterocarpus. The wood was pale, reddish-brown, moderately hard, and oily. It was used locally for planking and packing cases, and experiments were being carried out in India as to the suitability of the wood for railway sleepers after antiseptic treatment. It was one of the best woods for parquet flooring, and could be most successfully employed for panelling. Its average weight was 50 lb. per cu. ft.

Sal was one of the most important Indian timbers, and on account of its strength and durability was in great demand locally for railway sleepers, rolling stock, building purposes, &c., but on account of the local demand there was little likelihood of supplies being available for export in commercial quantities in the near future.

The beautiful Andaman padauk, also known as Andaman redwood, deserved to be more widely used in this country, where its fine qualities were by no means fully recognised. It was restricted to the Andamans. The outstanding characteristic was the striking colour, which varied from deep crimson and brilliant red to brown, sometimes streaked with dark brown or black. The best-coloured logs constituted only a small portion of those cut (about 5 per cent.), but it was estimated that approximately 70 per cent. of the logs yielded red wood of various shades fit for export; the remaining 30 per cent. consisted of "off-coloured" timber, which was fully equal to the best logs except in colour. The wood was very strong and durable, with a fine hard, smooth texture. It worked well, did not warp or split, and took a remarkably fine polish, which well repaid the labour spent upon it. When worked in delicate mouldings, however, the finer members were inclined to chip.

The valuable blackwood, also known in this country as East India or Bombay rosewood, was a handsome, dark purplish wood with black streaks. It was very hard and durable, some-

what difficult to work, but took a fine smooth polish. In India blackwood was extensively used for furniture, cabinet work, panelling, carving, joinery, carts, and for ordnance purposes, as well as for tool handles, brush backs, musical instruments, turnery, &c. The wood was exported to Europe and America for furniture and cabinet making, but in this country its use was now practically confined to the pianoforte trade. It deserved much wider application. Its weight was 50 lb. per cu. ft.

Moulmein cedar, also known as toon, red cedar and thitkado (Burma), was exported to Europe from Burma, and was well known in this country, being familiar as one of the woods used for making cigar boxes. It was also obtainable from other parts of the Empire—e.g., Australia. The soft, fragrant wood was of a rose to dull red colour, and resembled an open-grained mahogany in texture and general characteristics. It worked to a smooth, shiny finish, and took a fine polish, but required considerable previous filling. The timber was durable under cover, did not split or warp, but was apt to be affected by large variations of temperature and moisture. The wood was in great demand in this country, and fine logs frequently obtained high prices. It was a valuable wood for furniture, cabinet work, panelling and cigar boxes, and in India additional uses were for tea-chests, boats, carving, oil casks, &c. Its weight was 35 lb. per cu. ft., but variable.

Pyinma (taman jarul) was the chief timber of Assam, Eastern Bengal, and Chittagong, and one of the most important timbers of Burma, where it was available in fair quantity. It was lightish reddish grey to olive-brown in colour, hard, durable and with a straight grain. It worked easily, gave a good surface, and took a fine polish. The wood was used in India for many purposes where strength and durability, combined with lightness, were required. It had been imported occasionally into this country, and had been recommended for carriage building, furniture and panelling, for which it would appear very suitable. Its weight was 40 to 45 lb. per cu. ft.

West Africa.

Practically the whole of the timber hitherto exported from British West Africa had been sold as "mahogany," though certain other woods,—e.g., iroko or West African teak, African walnut, African padauk—were more or less familiar to a section of the timber trade, though the majority of those woods remained practically unknown to timber users in this country. At the present time, however, there were indications that the merits of selected West African woods other than "mahoganies" were receiving recognition in this country, and it was probable that, under favourable conditions as to freight, felling dues, and forest transport, those timbers would find a regular market in this country for a variety of useful purposes.

The "mahoganies" derived from West Africa comprised several distinct botanical species of woods, which in appearance and practical qualities resembled the true mahogany of the West Indies sufficiently closely to be accepted and classified by the trade as mahogany. The best of the West African mahoganies were very valuable woods, and held a high position in the market on account of the large sizes and quantities in which they were available and the magnificent figure which often characterised them. For some time past the greater part of the enormous consumption of mahogany in this country had been of West African origin.

"Lagos" mahogany closely resembled Honduras mahogany in colour and general qualities. Formerly it was the best of the African mahoganies marketed, and many finely figured logs were regularly obtainable. Supplies of excellent wood were still shipped, but the export from Lagos had diminished in recent years.

The "Benin" wood was of very fine quality, and was especially useful for panel work on account of the large size of the logs. It resembled Lagos mahogany but was of superior toughness.

"Sapele" mahogany was also obtainable in large sizes, and figured logs were common. The wood frequently possessed a strong cedar odour, which in this country had been held to be a disadvantage. A more serious defect was the common occurrence of ring-shake in the logs, and the liability of the wood to warp. The former defect might possibly be overcome by special methods of felling, and it was known that the warping could be avoided by using carefully-seasoned timber cut on the quarter.

African teak, a splendid hardwood, also known as iroka and odoum, was one of the most valuable timbers in West Africa. It was extensively used locally for all kinds of construction work (including general carpentry, joinery, and furniture), and was regularly imported into this country in small quantities from Nigeria and the Gold Coast, the best qualities coming from Benin (Nigeria). The wood was usually sold as "African teak" and also as "African oak"; the latter name, however, was incorrectly applied, the source of original African "oak" being *Oldfieldia Africana*, Benth. and Hook. f. In spite of its trade name, African teak was not related to true teak, and bore little resemblance to that wood in appearance and general features, the absence of the characteristic oiliness of teak being a notable point of difference. The wood varied from pale yellow-brown to dark brown, had a good appearance, and was strong, moderately hard, and very durable. When well seasoned it did not warp. It sawed and planed well, but being somewhat cross-grained required care in finishing, and took nails indifferently. The grain was often somewhat open, but was handsome when polished. The wood was well adapted for all purposes where a strong, durable wood of good appearance was required, and should receive far more attention in this country. It was excellently suited for doors (inside and out), window sashes, sills, treads, and staircases, and probably possessed a considerable degree of fire resistance. The wood should be most useful for interior finishing, joinery, cabinet work, laboratory benches and fittings, wagon building, and wheel felloes.

British Guiana.

Crabwood, or British Guiana mahogany, was a valuable timber, which deserved far wider attention in this country, being suitable for many purposes where medium qualities of mahogany were employed. Two varieties were stated to occur—viz., "red" (or highland) crabwood, and "white" (or lowland) crabwood, but so far it had not been possible to detect any botanical distinction between the trees concerned. The former was darker in colour and of closer texture than the "white" variety. Red crabwood was a tough, moderately soft, lustrous wood, closely resembling mahogany and certain grades of cedar in colour and appearance. It had a moderately coarse, open grain, sawed easily, took nails fairly well, and was capable of a high polish. In planing, care was necessary, as the wood was sometimes apt to "pick up." It was a very useful cabinet and furniture wood, and was well adapted as a substitute for medium quality mahogany; it had been used with much success in the British Guiana Court at the Imperial Institute for show cases, and ornamental construction work. Its weight was 38½ lb. to 46½ lb. per cu. ft. (quoted by Stone and Freeman).

Red cedar was the well-known "West Indian cedar," commercial supplies of which were derived from several parts of the West Indies. It should not be confused with white cedar or warakuki. British Guiana red cedar had a fairly coarse grain, but worked well and took a good finish.

Mora was a handsome timber which deserved to be better known in this country. It was dark or reddish brown, often streaked with whitish or dark brown lines, and possessed a lustrous surface, which, however, was somewhat marred by a grey resinous deposit. The heartwood was one of the eight first-class shipbuilding timbers at Lloyd's, and was obtainable in logs 18 to 35 ft. in length, squaring 12 to 20 in. Mora was a hard, heavy, strong, very tough and durable timber, fissile, hard to saw, planing well and smoothly but nailing badly; it took a fine polish. The wood was abundant in the colony, and was strongly recommended for shipbuilding, heavy construction work, and for railway sleepers; it was also worth trial as paving blocks. Its weight was 57 to 68½ lb. per cu. ft.

Wallaba was one of the most useful and abundant timbers of the colony. Several varieties were recognised, the chief being "soft" wallaba and itura wallaba. The heartwood of both these species was much used locally for posts and fencing on account of its great durability, and was also extensively employed for barrel and vat staves, shingles, and firewood. "Soft" wallaba (so-called), however, was probably the most useful and abundant of all the varieties. It was a striking dark red wood, hard and heavy, and with a coarse but more or less even grain. The abundant resin caused a stickiness which was an unfortunate feature for many purposes, as was also the unpleasant smell, which, however, was not permanent. The wood split easily, straight, and fairly cleanly, was moderately easy to saw, took nails badly, and planed fairly well; it was troublesome to polish on account of smearing. The wood had been suggested as suitable for paving blocks. Its weight was 62 lb. per cu. ft. (quoted by Stone and Freeman).

British Honduras.

British Honduras was one of the most important timber-producing countries of the Empire. A considerable number of valuable woods were found in the country, but the most important was British Honduras mahogany, cedar and rosewood. Pine also occurred in considerable quantities and merited further attention.

British Honduras mahogany formed one of the best grades of mahogany in the market, and was too well known to need detailed description. The best qualities of Honduras mahogany were said to come from the limestone soils to the north of Belize. Those from the south of the colony, and especially from the Mosquito Coast, were somewhat inferior in density and grain.

Honduras rosewood was much valued for furniture and cabinet work and for turnery, inlaying, &c. It was a dark, reddish or nut-brown wood, with an attractive grain and often streaked with narrow black lines. Its weight was 68 to 77½ lb. per cu. ft.

British Honduras pine was a characteristic feature of the "pine ridges" of the colony, and occurred in considerable quantity. It resembled pitch pine in appearance and weight, and was used on the colony to a small extent for building purposes.

Sir Joseph Cook (High Commissioner for Australia), Professor W. R. Dunstan (Director of the Imperial Institute), Sir Edgar Walton (High Commissioner of South Africa), Mr. H. O. Weller (Director of the Building Research Committee), Mr. W. E. V. Crompton, Mr. Alan E. Munby, and others, took part in the subsequent discussion.

Sir Edgar Cook mentioned that there was a teak which grew in Northern Australia which was immune from attack by white ants. For many purposes he thought jarrah was superior to karri, particularly for railway sleepers.—Mr. Weller also held this view, and said that while borers would attack karri they would not attack jarrah. In his opinion the best teak now came from Java.—Referring to the proposals for the development of the timber resources of the Empire, Professor Dunstan said it was surprising in view of these proposals to find that in two of the largest public buildings now in course of erection in London foreign wood was being used.

A hearty vote of thanks was passed to the lecturer.

Paisley War Memorial.

The Paisley War Memorial Competition design illustrated in our last issue was submitted by Mr. T. Alwyn Lloyd, F.R.I.B.A., and Mr. J. A. Hallam. Mr. Hallam's initials were given wrongly in our last issue.

THE EMPLOYMENT OF ART STUDENTS.

We have received the following letter from Mr. Walter Bayes, Principal of the L.C.C. Westminster Technical Institute:—

Sir,—My attention has been drawn (perhaps a trifle late in the day) to a Note in your issue for February 24, commenting unfavourably on a scheme for employing art students in decorating the New County Hall. As I think your paper commands sufficient respect to make such criticism possibly prejudicial to the success of the scheme, perhaps you will permit me a brief reply.

With many of your comments I should largely be in agreement were the facts such as you indicate (or suggest), but are they? Is it true, for example, that "eleven students from the Slade Schools have been given walls"? I had the pleasure of conferring with Professor Tonks last Thursday, and he told me nothing about any such arrangement. I agree that "if the work is being kept for students and only students" it might be discouraging to artists of experience, but is there any reason for assuming anything of the sort?

So far as I know (and if there is more to know I hope you will say so) the headmasters of four London art schools have been offered the opportunity of letting their students design paintings for certain spaces in the County Hall—the said paintings, if acceptable, to be put up and certain small sums about covering expenses to be paid to the schools, the students working for glory and experience. The spaces in question are not large, they are in a minor corridor, and similar panels exist all over the building in far greater number than are ever likely to be filled with paintings; their being given over to students does not then in any way vitiate the prospects of the maturer artists later—indeed, I am not sure that in the minds of some of us there may not have been a hope that the acceptance of work from the schools might commit the authorities to more serious decoration afterwards because, as you well put it, "if the work were kept for students—and only students—etc."

The headmasters of the schools in question (Mr. Charles Sims, Professor Tonks, Professor Rothenstein, and myself) were offered more important places, but preferred the humbler beginnings in deference to the claims of the artist of established claims. Even so, we may admit that this employment of art students semi-gratuitously is not an ideal state of things—the painter is worthy of his hire, and the students should get their training as his assistants. But do you, Sir, realise how rarely even "well-known artists" get an opportunity of doing decorative work—how little is done, and how much of that is given to hacks of no distinction who "have always given every satisfaction"? (I think if Titian and Veronese and Michelangelo asked an architect for a job to-day they would be told he had already painters who gave him every satisfaction.) One of the reasons alleged for this lack of patronage is that modern painters have no practical experience of decorative work, and it seemed to some of us hugely desirable that artists of the next generation should be saved from this reproach and given an opportunity of experience. We do not, alas! live in an ideal world, and if we never did anything anyone could object to there would be small scope for initiative. As it is there are other critics who object to the scheme unless all other art students are included in it. Both objections cannot hold good.

[Our leading article this week deals with some of the points raised by our correspondent, whose letter reached us after our article was in print. We are glad to publish Mr. Bayes' letter, which does not alter the great objection to be felt for work of this kind being handed over to art students when there are artists of experience without opportunity for such work. That modern artists have no practical experience of decorative work is not the case at all, and we may recall the fact that there is the Society of Mural Decorators. Anyone might be led to think that the lost art of wall painting had only just been discovered by the promoters of this scheme, but this is not the view of artists.]

THE R.I.B.A. CONFERENCE AT CARDIFF.

The following is the programme of the R.I.B.A. Conference to be held in Cardiff from June 8 to 10 this year:—

Thursday, June 8—8.30 p.m.: Reception by the Lord Mayor of Cardiff (Councillor F. H. Turnbull) at the City Hall.—An exhibition of prints and photographs of Cardiff, old and new, will be on view.

Friday, June 9—10.30 a.m. to 11.30 a.m.: Paper by Major Harry Barnes, M.P., on "Unification and Registration."—11.45 a.m. to 1 p.m.: Visit to City Hall and Law Courts, Cathays Park.—2.30 p.m. to 5 p.m.: Visits to Welsh National Museum and Glamorgan County Hall.—7 p.m. for 7.30 p.m.: R.I.B.A. Banquet.

Saturday, June 10—10 a.m. to 11.15 a.m.: Paper by Mr. H. T. Buckland (President of the Birmingham Architectural Association) on "Civic Architecture and Advisory Art Committees."—11.15 a.m. to 12.30 p.m.: Paper by Mr. Percy Thomas, O.B.E. (President of the South Wales Institute of Architects) on "Problems of Practice."—2 p.m. to 6 p.m.: Visit to Cardiff Castle and Grounds.—4 p.m.: Tea in the Castle Grounds, by invitation of the Marquis of Bute.—8 p.m.: Smoking Concert.

Sunday, June 11.—Arrangements are in hand for a char-à-banc tour to Tintern Abbey and the Wye Valley for those members who stay in Cardiff over the week-end.

EXHIBITION NOTES.

FINE ART SOCIETY.

Visions of blue-green landscapes with skies of golden light meet one in the decorative landscapes of W. G. Robb at the Fine Art Society's. In the bulk the effect is not very pleasing, and yet individually several of the pictures are charming. "The Pool at Benfleet" (26) is an impressive rendering of the glory of big trees and fleecy clouds, and in "Reflections" (1) we have a delightful effect of sparkling blue reflections in a grey-green landscape. The doll-like figures in these green landscapes do not add so much to their value as the rustic figures in No. 26, though they do accentuate the effects in some ways.

Amongst the seventy odd water-colours by T. B. Meteyard there is a dominant note of blue, but there is a variety of outlook and apparent sincerity in his work. "The Passing Storm" is a fine bit of colour, and the "Sinking Sands" (24) is a charming sketch. Where blue is not supreme the colour effects are not so good, but the subjects are well selected.

LEICESTER GALLERIES.

The note of individuality in the figure drawing of the late Claude Shepperson, A.R.A., which gave it a piquant flavour, will seem of less moment to many than his charming landscape work as seen in the Memorial Exhibition at the Leicester Galleries. He lived long enough (to 54) to take and give great pleasure in his happy realisation of colour and form, and the world of art suffers a loss in his death. His was a catholic outlook and he was apparently as happy in doing sketches for *Punch* as in landscape sketches or decorative subjects or etchings. Many things from the "West Countrie" are to be seen in the present exhibition and if one mentions "The Storm," "Moths," "Barnard Castle," and "The Little Sick Faun," it is not because they are better than all the rest, but that they typify the visions of beauty which came in such happy abundance to this gifted artist.

WATER COLOURS AT THE A.A.

There seems to be an unfailing supply of interesting material for exhibition at the A.A. The 34 pictures by C. J. Kennedy (a member of the A.A.) are attractive as genuine water-colour work. There is no formality or convention which suggests an architectural mind, but the free spontaneity of an artist who appreciates the charm of nature. Some of the drawings have a special serenity and quiet charm, such as "The Lush Meadow" (31) and "Hampton Court" (20); the former is a delightful bit of colour. Nos. 5, 8 and 23 show the artist at his best, but it is good to know that one who can handle water-colour so well may add to our pleasures for some time to come.

NORTHERN ARCHITECTURAL ASSOCIATION.

The annual meeting of the Northern Architectural Association was held on March 15, under the chairmanship of Mr. T. R. Milburn (President).

The Secretary (Mr. G. T. Brown, of Sunderland) presented the annual report of the Council, which stated that during the past year eleven new Members, nine Associates, and ten Students had been elected. The total was now 84 Members, two Honorary Members, 90 Associates, and 39 Students. The report expressed the pleasure of the Council at the fact that the Royal Institute Practice Standing Committee had elected Mr. Milburn as a member, and had appointed him Vice-Chairman. Through the joint activities of the Association and Armstrong College, Newcastle, there had been established at that College a School of Architecture, which would be opened in the coming autumn. The degree and diploma course would exempt students from the Intermediate and Final Examinations of the R.I.B.A. The School would fill a long-felt want in the North of England, and would make it unnecessary for students to go to London and other centres for a systematic architectural education. The Association had contributed to the College the sum of £500 in support of the School of Architecture, and would in future make an annual contribution of £50.

In moving the adoption of the Report, the Chairman made reference to the unity of the profession as between the R.I.B.A. and the allied societies. The outstanding event of the year as far as their Association was concerned had been the visit of the President a few weeks ago. They were all, he was sure, especially pleased that Mr. G. T. Brown, who had filled the office of Secretary for so many years, had again consented to continue his duties until the new arrangements with Armstrong College had been completed.—The report was unanimously adopted.

The officers appointed for the ensuing year are as follows:—President, Mr. T. R. Milburn; Vice-President, Mr. W. T. Jones; Honorary Treasurer, Mr. J. T. Cackett; Honorary Secretary, Mr. G. T. Brown; Assistant Honorary Secretary, Mr. G. H. Gray; Honorary Librarian, Mr. F. N. Weightman.

MEETINGS.

Monday, *March* 27.

Architectural Association.—Mr. Gilbert Bayes on "Treatment of Sculpture in Architecture." At 34-35, Bedford-square, W.C.1. 7 p.m. Also exhibition of housing and town-planning in Holland.

Wednesday, *March* 29.

University College Lectures.—Mr. Martin S. Briggs on "Historical Building Construction: Glazing." 6.15 p.m.

L.C.C. Central School of Arts and Crafts.—Sir Banister Fletcher on "Belgian and Dutch Mediæval Architecture." 6 p.m.

Thursday, *March* 30.

Chadwick Public Lectures.—Mr. H. E. Stilgoe on "Water: Its Distribution and Use." At 9, Conduit-street, W.1. 8 p.m.

Edinburgh Architectural Association.—Annual General Meeting. President's Valedictory Address. At 117, George-street. 8 p.m.

Architects' and Surveyors' Assistants' Professional Union.—Major H. Barnes, M.P., on "Overcrowding of the Profession." At Caxton Hall, S.W. 1. 6.30 p.m.

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ILLUSTRATIONS.

Blackpool War Memorial Competition.

This design, by Mr. Ernest Prestwich, M.A., A.R.I.B.A., of Leigh, was submitted in the recent competition for the Blackpool war memorial, and was placed first by Dr. Percy Worthington, M.A., F.R.I.B.A., the assessor. The competition was in two stages, six designs being selected to compete in the final competition, each of the six competitors receiving a premium.

The obelisk will be 90 ft. high, rising from a platform with semi-circular ends, in which are placed war stones, having on the top enriched bronze plates with the names of the fallen. The two large bronze panels at the base of the obelisk, each 14 ft. long by 6 ft. high, will represent "1914" and "1919." "1914" shows man offering his all in valour and industry to Britannia. In the "1919" panel Britannia is seen extending the laurel wreath to those who return and to war's victims. The sculptor for this work is Mr. Gilbert Ledward.

The memorial will occupy a central position in the long promenade, forming a distinct feature on the sea front. The obelisk will be erected in Cornish grey granite, the tender of Messrs. Clegg & Sons (of Chester), for £17,300, having been accepted for the work. This amount includes the cost of the concrete foundations, which go down 40 ft. below the promenade level. Dr. Oscar Faber, O.B.E., is the consulting engineer retained by the architect for this latter work. The perspective drawing is by Mr. H. C. Bradshaw, A.R.I.B.A.

Buckfast Abbey, South Devon.

In 1882 a community of Benedictine monks acquired the site and what little remained of the once rich and powerful Abbey of Buckfast, situated on the border of Dartmoor. Founded in remote Saxon times as a Benedictine house, it passed into the hands of the Cistercians, and was rebuilt by them in the twelfth century; it appears to have been, as usual, added to and altered from time to time up to the early part of the sixteenth century. The Abbey was surrendered to the Royal Commissioners on February 25, 1539, and although inhabited for some time after, it was eventually left to ruin and decay, and like so many others became a stone quarry for the countryside.

In 1806 a Mr. Berry levelled what remained standing of the church and most of the other buildings, out of the materials of which he built a modern house. As at this time he carefully covered all the foundations of the old walls with the sole exception of certain fifteenth-century additions to the original buildings, the disposition of the latter had become quite unknown. In 1883 it was determined to discover, if possible, the old foundations, and with completely successful results, the whole plan being laid bare with the exception of the position on which the modern house stands. The buildings forming the south side of the quadrangle were at once re-erected, and since then the western side has been completed, as well as the east and north cloisters.

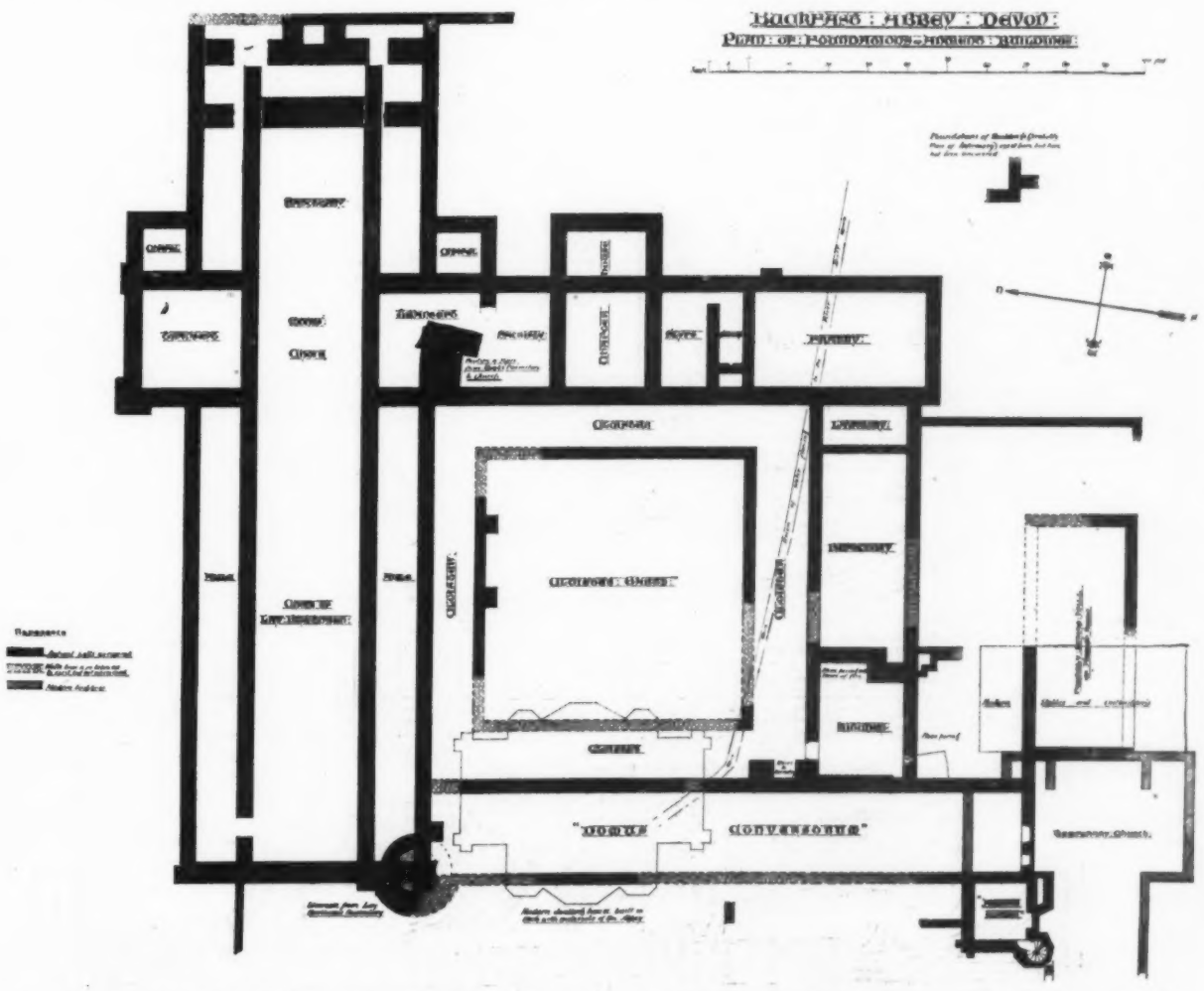
At the end of 1906 it was determined to commence the rebuilding of the Abbey Church, and the work was begun with as little delay as possible, the whole work being carried out by the monks themselves under the direction of the architect and (in the earlier stages) by a clerk of works. At present the whole of the eastern portion and six bays of the structural nave are mainly completed, and are expected to be ready for use by August next. The total length of the church (according to the twelfth-century foundations) is 240 ft., but there had evidently been an extension of the choir eastward at a later date. So far as can be ascertained the plan and character of the twelfth century church is being followed, with the exception of the probably low Cistercian tower which, by special desire, will be replaced by one more in accordance with Benedictine traditions, although at present it is only carried sufficiently high to allow of the hanging of the peal of fourteen bells which are now rung from the gallery of the lantern.

The plan of the church is cruciform, the eastern arm being short (as was the usual early Cistercian arrangement) with a range of six chapels at the end. The transepts only project one bay, and have each a chapel on the east side. The choir extends three bays westward of the tower, and will be furnished with two rows of stalls. The high altar stands in the centre of the eastern bay of the presbytery.

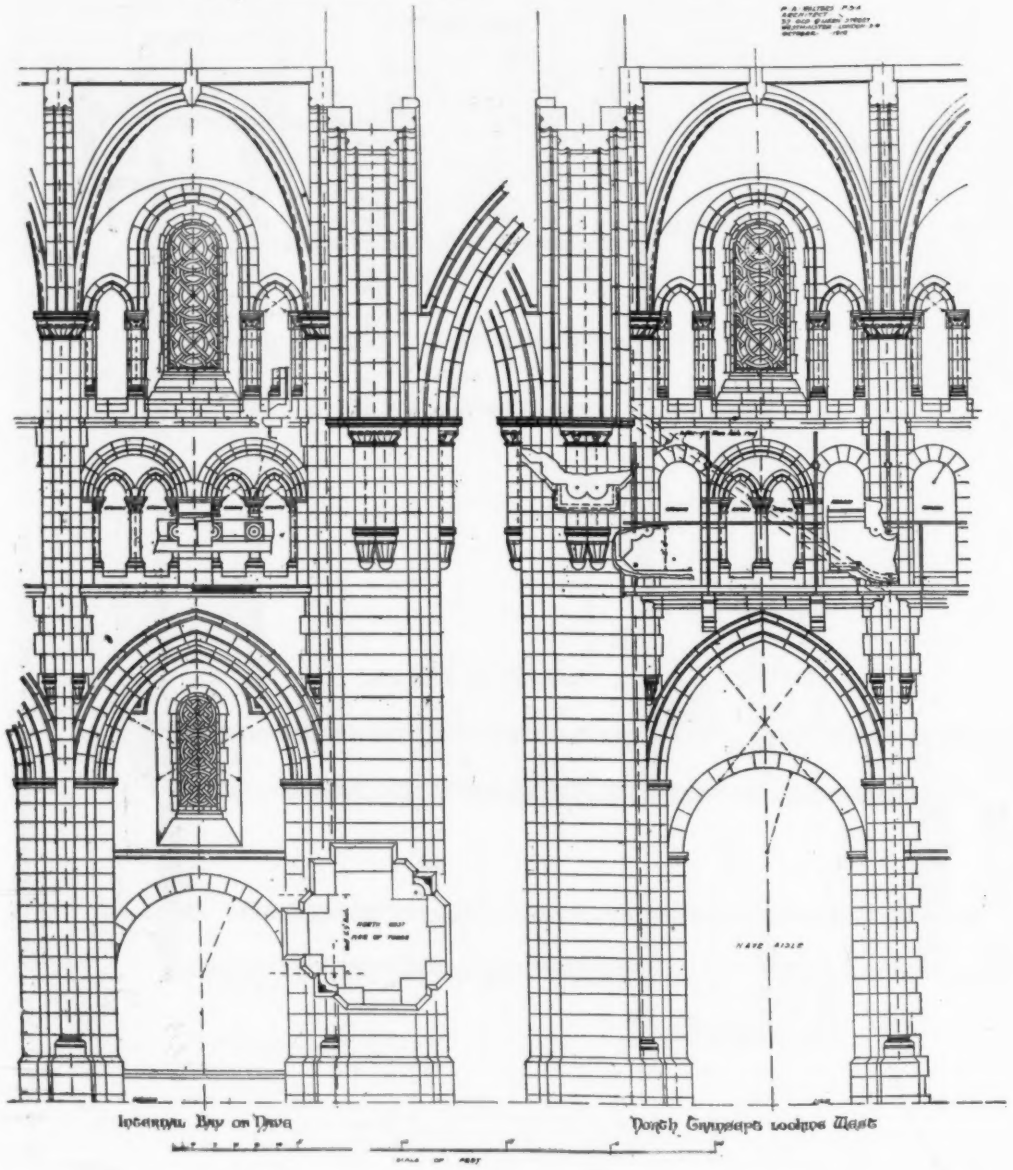
Externally, the walls, including quoins, are of random-coursed dark-grey local limestone, Ham Hill stone being used for the windows and other freestone work. Internally, Bath stone is being used throughout.

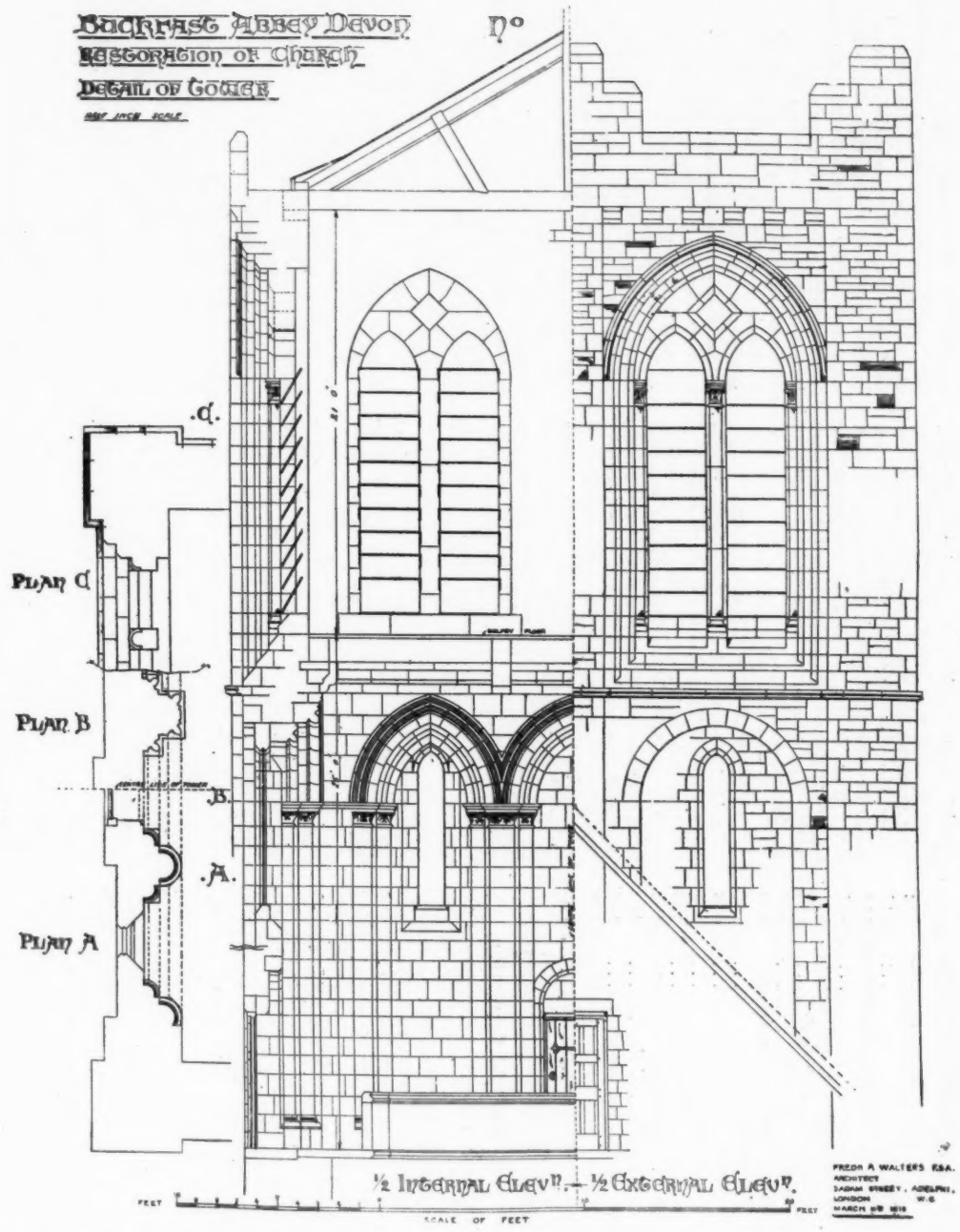
Up to the present time the value of the structural work carried out on the church since 1906 is estimated at about £20,000, the greater part at pre-war values, but owing to all the building work being done by the monks the actual cost has been far less.

Mr. Frederick A. Walters, F.S.A., of 28, Great Ormond-street, W.C.1, has designed and superintended the work from the commencement in 1883, including the tracing and uncovering of the foundations of the whole of the original buildings.

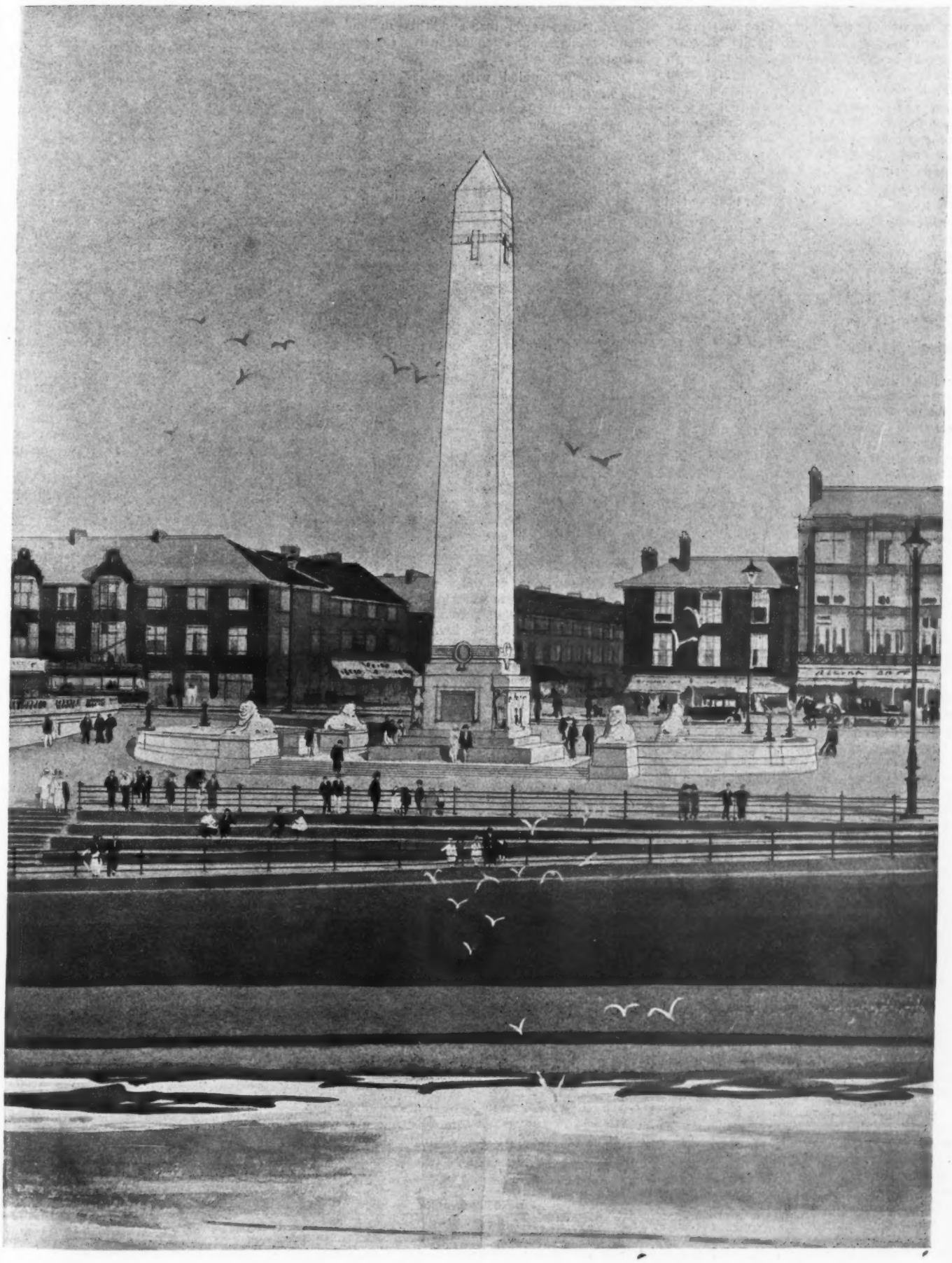


Buckfast Abbey: Plan of Foundations of Ancient Buildings. From a drawing by MR. FREDERICK A. WALTERS, F.S.A.





Mr. Frederick A. Walters, F.S.A., Architect. (*See p.* 443.)



Blackpool War Memorial Competition.

First Premiated Design, by Mr. Ernest Prestwich, M.A., F.R.I.B.A. (*See p.* 443.)

HOUSING AND SMOKE ABATEMENT.

BY MANNING ROBERTSON, A.R.I.B.A.

THE report of the Committee on Smoke Abatement has aroused much public interest; the appalling waste and dirt associated with the burning of raw coal has at last been brought home. The case against smoke has so often and so ably been presented within the past few months that it may be assumed that everyone now admits that smoke and soot ought to be abolished. There remains, however, the very real danger that after saying "how dreadful" the average man will do nothing more, and his co-operation is essential to success.

It is too much to expect that all local authorities, public utility societies, and private individuals who are about to build six or a dozen houses should throw themselves fervently into experiments in communal heating and other such elaborate methods, and there is a possibility that too much stress has been laid on the pioneering side of the question and not enough on the contribution that can easily be made by everybody. The vital principle to be borne in mind is that the burning of raw coal should be discontinued. As alternatives, we may burn coke, anthracite, or other smokeless fuels; we may rely on gas, hot water, steam, or electricity. In dealing with what might be called the everyday aspect of the problem, it is best at once to dismiss communal systems of steam or hot water as being beyond the reach of the average small housing estate, but this does not mean that communal systems may not in the future go a long way towards solving the problem, and it is to be hoped that those now in existence will be carefully studied and reported on with a view to the further extension and improvement of the principle.

At first sight, electricity would appear to be the ideal method; 100 per cent. of the heat is available for warming purposes, as against about 60 per cent. in a coal fire; no fumes are produced, and there is consequently no necessity to provide flues; it is safe, clean, and convenient. The drawback is cost, and, in large schemes, the enormous amount of power required in winter that would lie idle during the summer. The report of the Hydro-Electric Power Commission of Ontario, dealing with the heating of homes by electricity, goes fully into the question. It states that in order to heat the 80,000 homes in Toronto, 960,000 horse-power would be required, and this immense plant would have to lie idle during the summer, as no industry could utilise such a plant for five months only during the year without itself being idle all the winter. The report comes to the conclusion that the great water powers of Canada can never entirely solve the fuel problem in that climate. As we in this country possess no such water power our position is considerably worse. It would, therefore, appear that, while electricity is ideal as an illuminant and for power transmission, for the present at any rate we cannot look to it as a cheap method of heating cottages.

Experimental cottages have been erected containing small low-pressure hot-water circulating systems heated by a coke boiler in the scullery, radiators being placed in the living-room, parlour, and the two larger bedrooms. In order to obviate the cheerlessness of sitting in a room heated only by a radiator, and in case of breakdown in the hot-water system, gas fires were placed in the living-room and main bedroom; 7 in. by 3 in. gas flues, cast in hollow concrete blocks, were provided, thus avoiding the expense of building the usual chimney breasts and 9 in. by 9 in. flues, and at the same time throwing more space into the rooms. But, allowing for the saving in chimney breasts and stacks, houses heated in this way would cost some £25 extra, even at pre-war rates, and this method of heating is therefore too expensive for general adoption.

Economy coupled with efficiency must be the key-note of any method of heating that can be successful. It has already been noted that economy can be effected by substituting light gas flues for the usual smoke flues, and there is no reason why the parlour and bedrooms should not generally be built with gas fires and small flues carried up some 12 in. above the roof. A gas fire is ideal in a parlour or bedroom where a fire is often wanted for half-an-hour or so at its maximum heat, and in such circumstances the old-fashioned coal fire is useless; a further point in favour of such an arrangement is the amount of labour saved in carrying coal and in cleaning generally.

There still exists a certain prejudice against gas, a prejudice quickly dispelled by a little experience with the up-to-date gas fire, and the bowl of water is found to be a relic of the past. The modern gas fire, being fitted with a flue, gives no fumes into the room and throws out radiant heat identical with that of a coal fire, while the "drying" effect on the air is no greater with gas than with coal. If some kind of fuel-consuming grate is desired in the parlour there are grates on the market specially designed to burn coke, but it is astonishing how many old coal grates are capable of burning coke. One hears it said that it is dangerous to burn coke on account of its fumes. It is, of course, obvious that if the flue is in order the fumes all escape up the chimney; if, on the contrary, the flue is choked up or there is a down-draught it is impossible to live in a room with a coal or a coke fire. The fumes from coke are of an acrid nature and proclaim their presence as soon as the smoke from a coal fire, and there is the further point that coke will not burn unless there is a good draught. Experimental work is being done with a view to the production of other smokeless fuels, and a cheap and easy burning fuel of the kind would find a ready market and would be of the greatest value to the country, but it would have to be produced on a vast scale to do much practical good.

It is manifestly economical to make one fire do as much work as possible, and for this reason the average tenant prefers the range to be in the living-room; not only is it then available for cooking and hot water but it keeps the principal room in the house warm and comfortable during the winter, whereas in summer cooking can be done on a gas cooker, and water heated in a gas copper in the scullery. The interests of smoke abatement can be considered by installing a range designed to burn coke or anthracite. Houses heated on these lines would be cheaper to build than those containing the usual chimney breasts and stacks, and in a town of such houses the saving in labour and in the weekly washing bill, owing to the absence of soot and dirt, would secure a great economy. An official investigation in one of our large industrial towns has shown that, in the case of houses let at a weekly rental of less than eleven shillings, an extra 7½d. has to be expended every week on cleaning materials alone, on account of the dirt in the atmosphere.

Industrial smoke should be drastically dealt with, and our present anæmic policy should be strengthened, but the domestic chimney is responsible for about half the trouble. Every householder can contribute his share towards reform, and a considerable responsibility rests upon those who erect new houses. The average man can most easily assist the campaign against smoke by burning coke or anthracite in his range, and by installing gas fires or electric radiators elsewhere.

THE LONDON SOCIETY.

THE annual general meeting of the London Society was held at the Royal Academy, Burlington House, on Thursday last week, the RIGHT HON. THE EARL OF PLYMOUTH (President) in the chair.

In moving the adoption of the report and balance sheet for the year ending December 31, 1921, the CHAIRMAN said the progress of the Society had been steady in spite of the financial depression. The new members numbered 233, as against 198 during the previous year. The great question of traffic had been considered thoroughly by the experts of the Society; their work should be of great value to the authorities in enlarging and improving London. In reference to the movement to secure Ken Wood, he said for various reasons it was found impossible to take up the original option within the time allowed by Lord Mansfield. It was very difficult to value such an important property, and the Preservation Committee wished to arrive at such a sum as would be agreed to by a willing buyer and a willing seller, but when it came to using money subscribed or money forthcoming from the rates the authorities had to be very careful that they were not paying too high a price. Within the past two or three weeks a fresh opportunity had arisen for the purchase, and the preservation scheme was by no means dead, nor had it been abandoned, and a report of the negotiations on modified lines was about to be presented.

Regarding the question of higher buildings for London, he said he hoped the local authorities, who, he presumed, were responsible, would not allow any serious darkening of the streets, or obstruction to currents of air which were so valuable in an atmosphere like that of London. He would be very glad to see decorative buildings rise up which would give vistas of interest in large streets where it was possible to carry out such an idea as was now being carried out at Kingsway.

COLONEL SIR JOHN SMITH YOUNG, in seconding the motion, congratulated the members of the Society on its live and progressive policy.

The motion was supported by MISS LENA ASHWELL, who said she hoped one day there would be a Ministry which would protect and extend the fine arts, and which would have the right to put its seal on ancient buildings, such as the recently-discovered arch of old London Bridge, and preserve them for the public.

The motion was carried unanimously.

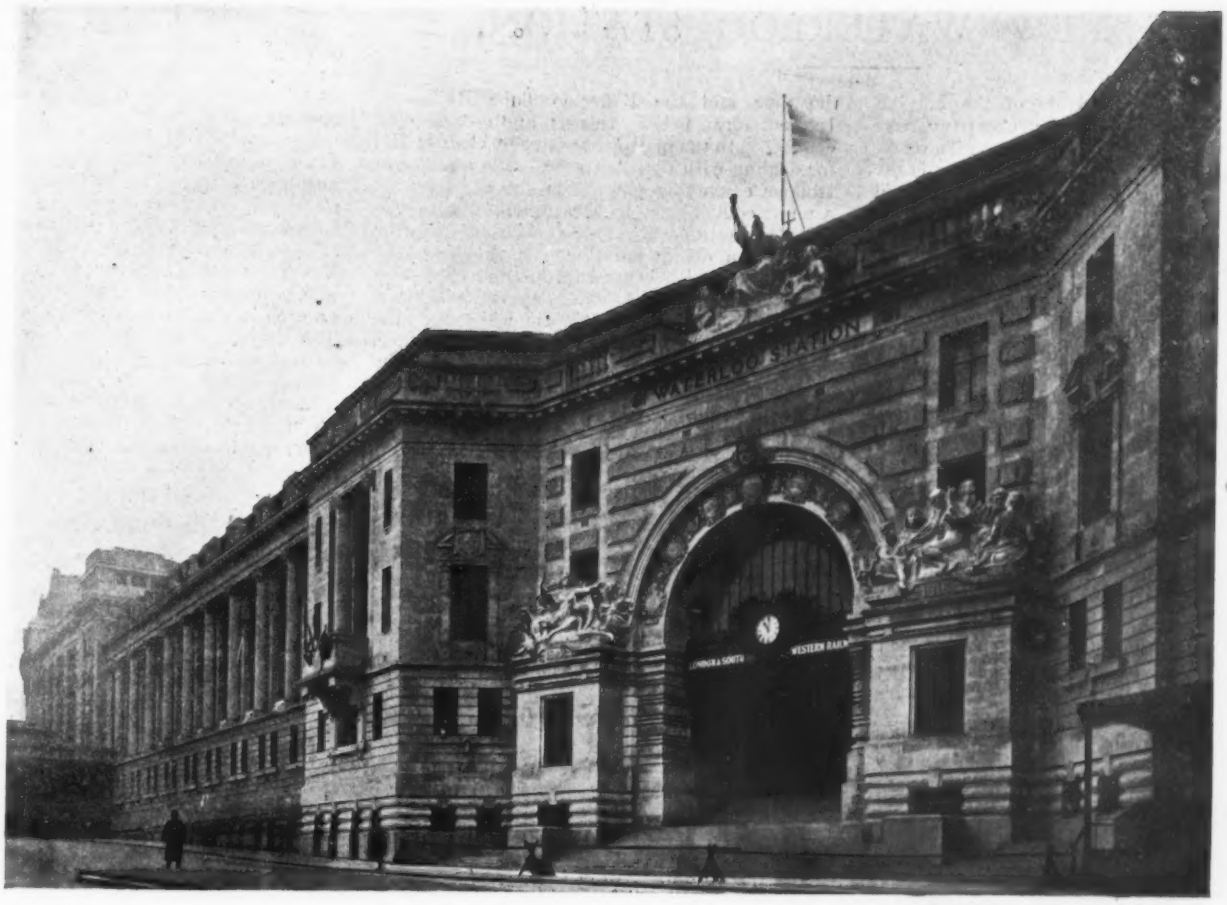
COLONEL SIR ARTHUR HOLBROOK, M.P., in moving the election of the Council, said the names were sufficient guarantee for the work the Society was carrying out.—Three new names were added to the list: Sir Theodore Chambers, K.B.E., Mr. W. R. Davidge, F.R.I.B.A., and Captain G. S. C. Swinton.

The RIGHT HON. SIR WILLIAM BULL, M.P., seconded the motion. He said he thought the new County Hall was a great addition to London, but was afraid it would be many years before it was completed, like so many other buildings in London at the present time; the Home Office, Law Courts, Somerset House, and the Houses of Parliament had never been finished.

The motion was carried unanimously.

MR. EDWIN T. HALL, F.R.I.B.A., who proposed a vote of thanks to the Royal Academy, the Chairman, and other speakers, said if the railway bridges over the streets and the river were substituted by underground railways the result would be purer air; and with a wide expanse of buildings and trees on each side of the river London would be the most beautiful capital.

The motion having been carried, SIR ASTON WEBB, P.R.A. (Chairman of the Council), in replying, said that as the Mansion House was the home of charity in London the Royal Academy should be the artistic home for London and the provinces. Owing to the work the Smoke Abatement Society had done the carbon in the air had been considerably reduced.



EXTERIOR.

INTERIOR.

The New Waterloo Station. (*See p.* 448.)

THE NEW WATERLOO STATION.

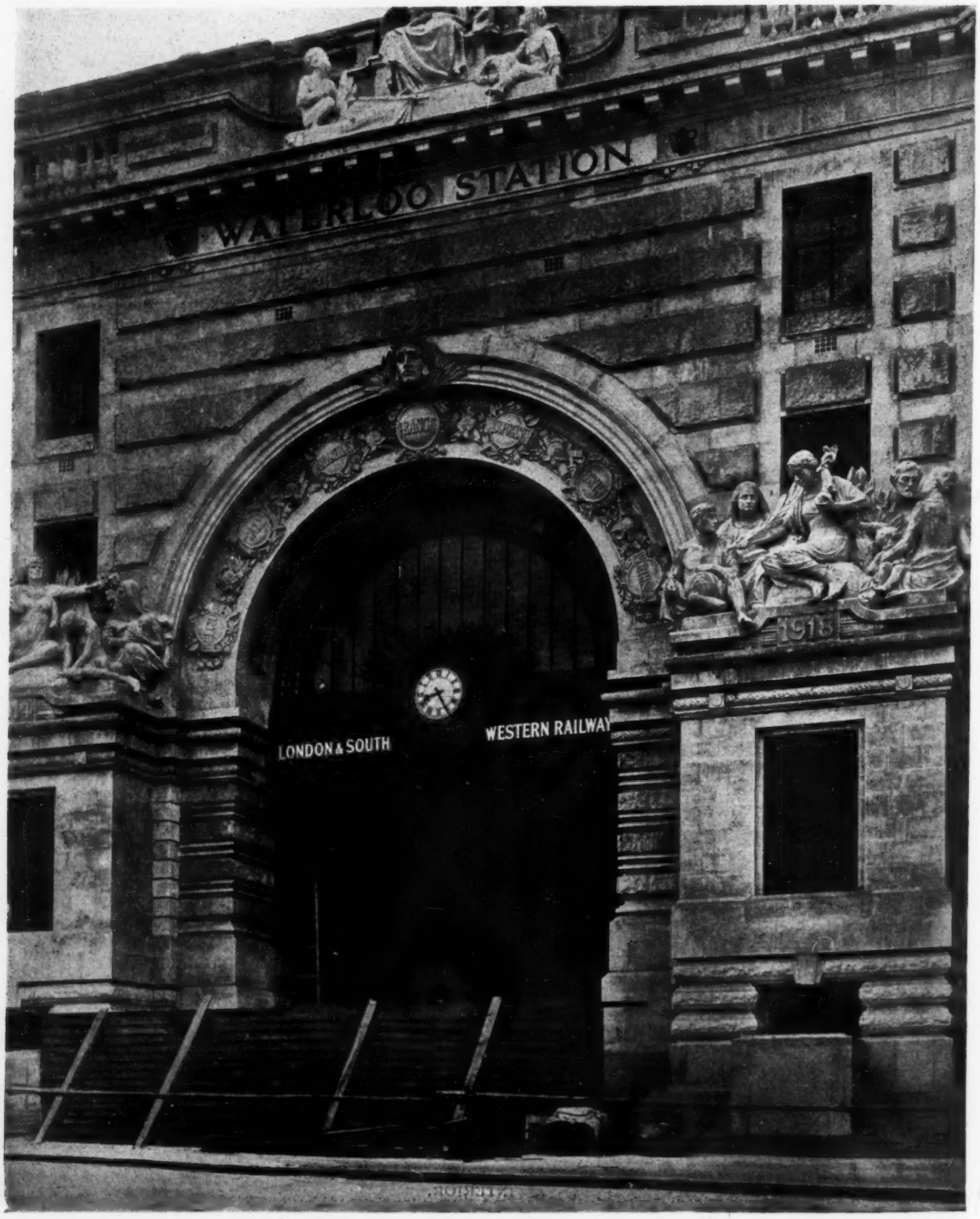
THE new Waterloo Station of the London and South Western Railway Company was opened by Her Majesty the Queen on Tuesday.

A feature of the reconstructed station is the concourse, which extends across the station and gives access to each of the 21 platforms, also to the booking offices, luggage and cloak rooms, refreshment, dining and tea rooms, waiting and toilet rooms for ladies and gentlemen, including baths, &c. The concourse and platforms are protected by a lofty roof mostly glazed, with specially designed ventilation, which admits of smoke and steam from the locomotives freely and speedily passing through the openings in the roof. Platforms Nos. 1 to 15 are each connected by a short flight of steps, midway in their length, to a subway which gives access to the City and the Bakerloo Tube Railways. Immediately below this is another subway connected to the platforms above by electric lifts for dealing with parcels traffic. The absence of trolleys conveying parcels on the concourse is a great convenience to the travelling public.

With a frontage also to the concourse and over the station offices are the general offices, the skeleton of which is steel framing encased with Portland stone and brick. Between platforms Nos. 15 and 16 is a building in which are the station master's office and lost property office, nearest the concourse, beyond which are the time and pay offices, mess rooms, &c., for guards, motormen, ticket examiners, porters and others, while on the upper floor is a dining room with up-to-date kitchen and other offices attached for the benefit of the clerical staff.

The station now occupies an area of 24½ acres, of which 10 acres are covered with roofing. On an average 1,200 trains arrive and depart every 24 hours; on special occasions the number has reached 1,370.

Advantage was taken of the work of reconstruction on the north side of the station to introduce a memorial to the employees of the Company who gave their lives in the war. It is incorporated in the northern entrance to the station, and takes the form of a "Victory Arch." The frontage is slightly set back from the general line, and approached by a flight of stone steps is an arch in Portland stone with a span of 28 ft. The sculptural decorations are three groups, two of which are semicircular in composition, placed on the pylons on each side of the arch. The one on the left represents War, and that on the right represents Peace. The panel around the arch is decorated with war trophies, and



The New Waterloo Station: Memorial Arch.

The New Waterloo Station.

discs giving the names of different countries where the men have fought, the whole surmounted and finished by the central group of Britannia. Under the arch, on either side on bronze tablets, the names of the 585 fallen are inscribed. The arch was designed by Mr. J. R. Scott, Chief Architectural Assistant to the Company.

Beneath the general station level there is the parcels depot, with connection by means of lifts to the platforms above; there are also workshops, and many of the arches are occupied as wine vaults. Still farther down is the City Railway, with repair shops, shunting yard, and two lifts capable of lifting or lowering coaches or trucks of coal.

The work has been designed and carried out under the direction of the Chief Engineers of the Company, viz.: the late J. W. Jacomb Hood, who died early in 1914, and since then by Mr. Alfred W. Szlumper, C.B.E., M.Inst.C.E. The Resident Engineer throughout has been Mr. R. D. Hawes, A.M.Inst.C.E., Assistant Engineer for New Works.

With the completion of the main entrance the reconstruction of the station, with the exception of minor work, will be finished. Messrs. Perry & Co. (Bow), Ltd., the contractors, inform us that during the whole of the period of construction not one life has been lost out of the thousands of men employed. The magnitude of the work is greatly enhanced when one considers the little dislocation of traffic that has occurred while the work has been in progress.

The memorial arches in cast-iron with cast-bronze clock case and ornaments, the cast-bronze memorial tablets with engraved and vitreous enamel filled inscription and names, have been carried out by the Birmingham Guild, Ltd., of 28, Berners-street, W. 1, who also executed the wrought and cast-iron gateways to the platforms.

Messrs. W. Edgcumbe Rendle & Co., Ltd., of 5, Victoria-street, S.W.1, carried out the roof-glazing on their "Invincible" system. The area of the roof is 56,000 ft. super., and ,000 tons of glass were used on the work, which was carried on for twenty years.

A plan and elevation of the station were given in our issue for May 29, 1914.

Salonika War Memorial.

The Salonika war memorial, for which a sum of about £4,000 has been subscribed, is to be erected at Colonial Hill, looking out on Lake Doiran. The memorial is to take the form of a pylon about 40 ft. high, built of local material. Near the base on each side will be a marble panel with the dedicatory inscription on one side in English and on the other side in Greek. At each end of the memorial will be a panel giving a list of the formations. At the four corners of the memorial, some distance from it, will be four piers into the sides of which are sunk marble panels giving the names of the missing. These piers will form the memorial to the missing, and are being carried out at the expense of the Imperial War Graves Commission. The memorial has been designed by Sir Robert Lorimer, A.R.A., R.S.A., Architect to the Commission for Italy, Macedonia, and Egypt.

The New Waterloo Station Platforms.

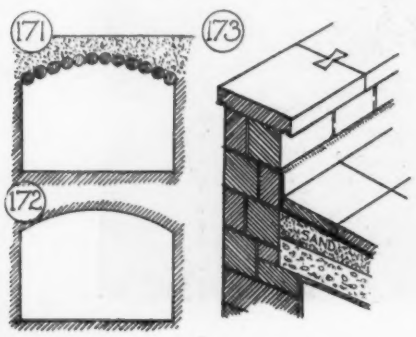
HISTORICAL BUILDING CONSTRUCTION.—VIII: ROOF COVERING.

BY MARTIN S. BRIGGS.

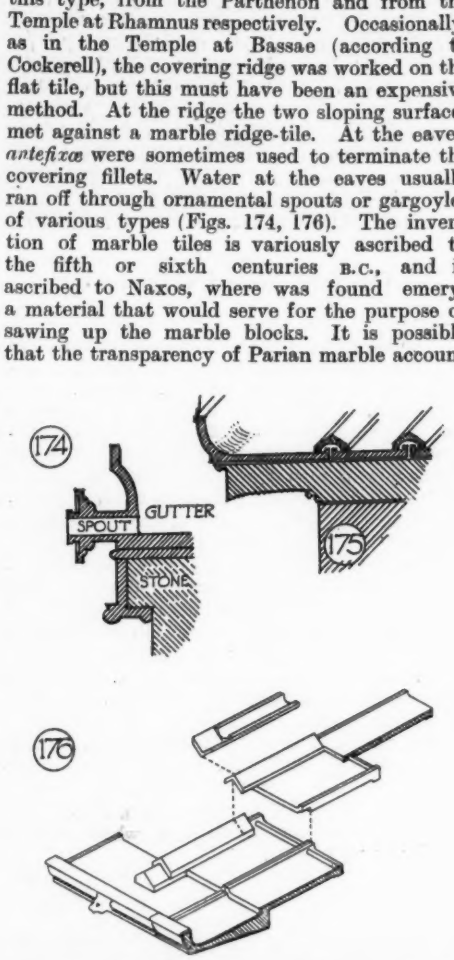
In no branch of historical architecture is the effect of climate and available material more evident than in the design of roofs. South of the Mediterranean the normal type was flat, in Italy and Greece a low pitch was found necessary, and in Northern Europe—so long as building followed its natural course—a steep slope has been the accepted form. But the revival of Roman fashions during the Renaissance brought the low-pitched roofs of Greece and Italy into higher latitudes than the ancient tradition had allowed, and the adoption of Welsh slates—or even less worthy materials—during the past century has broken the tradition of English roofing altogether.

In Egypt two types of roof were used: the huge slabs of stone employed in the temples, borne on immense columns or piers; and the flat mud roof on a ceiling of date-palm trunks laid close together. The former were ceilings rather than roofs, and are related to the marble ceilings of Greek temples and to the stone ceilings of Syria during the late Roman period. Nor have they much influence on the development of roof-construction properly speaking, for little, if any, provision is made for dealing with the effects of rain or snow, and it is that provision with which we must be mainly concerned in this article. The camber given to the palm trunks in the second type of roof (a sound precaution showing a knowledge of thrusts) may have suggested the curved ceiling of the typical Egyptian rock tomb, as shown in Figs. 171-2. It cannot be pretended that the flat roof, still used for every mud-built hovel in the country, is proof against the occasional rain-storms that appear in the parts of Egypt that lie near the sea. Yet most modern buildings in the cities have some form of flat roof, of some kind of concrete, supported on squared palm-trunks in the poorer houses and on steelwork in good work. But the flat surface exposed to the sun is still a problem. Concrete is liable to crack, asphalte is certain to melt, and for some good modern buildings the type of roof illustrated in Fig. 173 has been adopted. Reinforced concrete, or terra-cotta blocks supported on light steelwork, form the substructure. On this a bed of sand is laid to falls, then a layer of asphalte giving the necessary protection against damp, and finally a layer of square white tiles made locally and known as *balat* (*i.e.*, local) paving, this serving to protect the asphalte from the sun.

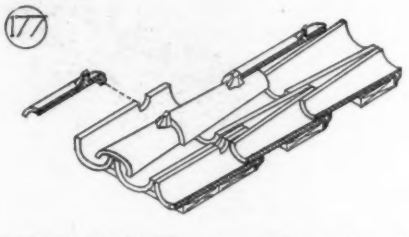
Flat roofs of tree trunks covered with some sort of mud or cement, perhaps sometimes laid to falls, appear to have been used in Assyria, Persia, and primitive Greece. But long before the age of Pericles we find the sloping roof adopted for Greek temples and other important buildings (see article V). The usual covering materials were tiles of marble or of terra-cotta. The latter was often used in early temples. Fig. 174 shows how terra-cotta was used in the roof of the Treasury of Gela at Olympia. This is a rare example of the application of terra-cotta casing to a core of masonry, but in many Greek and Etruscan buildings terra-cotta was used to protect the timbers of the entablature as well as to cover the roof. The heavy timber roof of the Arsenal at the Piraeus, illustrated in Fig. 101 (article V), was covered with Corinthian tiles bedded in mortar on close boarding, their under-surfaces being rarely true.



In marble tiling, large slabs were usually carried on an open framework of timber, with narrow ridged tiles covering the vertical joints. Figs. 175 and 176 represent two examples of this type, from the Parthenon and from the Temple at Rhamnus respectively. Occasionally, as in the Temple at Bassae (according to Cockerell), the covering ridge was worked on the flat tile, but this must have been an expensive method. At the ridge the two sloping surfaces met against a marble ridge-tile. At the eaves, *antefixæ* were sometimes used to terminate the covering fillets. Water at the eaves usually ran off through ornamental spouts or gargoyles of various types (Figs. 174, 176). The invention of marble tiles is variously ascribed to the fifth or sixth centuries B.C., and is ascribed to Naxos, where was found emery, a material that would serve for the purpose of sawing up the marble blocks. It is possible that the transparency of Parian marble accounted for its use in the Parthenon and most Greek temples, for thus may have been partially solved the vexed question of lighting these buildings. In the temple of Apollo at Bassae were found the largest marble tiles known, 3 ft. 6 in. by 2 ft. 1¼ in., and 1⅞ in. thick. One of these was pierced with an opening, of which the exact size is not known, but it was not less than 20 in. by 11 in., perhaps much more. This was presumably an aperture, or part of an aperture, extending over several tiles, to admit light. Round the edge of the opening was a raised rim to prevent water flowing in, the amount of rain that would fall directly on to the temple floor being negligible. On rounded surfaces, such as the classical top of the Monument of Lysicrates, the Greeks used marble tiles of scale form.



The Romans closely followed Greek precedent in their use of roofing materials. Tiles of marble and terra-cotta, sometimes with *antefixæ*, were employed, also fish-scale tiles on some buildings (e.g., the Tomb of Julius at St. Remy). Copper plates were used on the Pantheon, and lead on a temple in Auvergne. Among Roman remains found in England are several tiles. These had turned-up edges, cut off near the top to allow the next tile to lap over. The flanges were covered with half-round tiles, tapering upwards so that one lapped over another. Some of these tiles had a single nail-hole near the top. A tile-ridge or cresting was also used. The Romans also used slates in Britain, and thatch for unimportant buildings. The slates were thick, and of pointed shape below, like some modern asbestos tiles, thus producing the effect of diagonal lines on the roof. Stone ridges have also been found, with stone knobs or finials on the gable ends towards the street. Vitruvius has very little to tell us about Roman roofing materials, but he devotes a couple of pages to a study of primitive roofing, and mentions incidentally a building on the Areopagus at Athens with a mud roof, and also the thatched "hut of Romulus" on the Capitol at Rome.



Byzantine timber roofs were covered with half-round Italian tiles like those illustrated in Fig. 177, and tiles were laid on the extrados of domes in late work. The domes of S. Vitale and of the Baptistery at Ravenna have low-pitched tile roofs of timber to protect them from the weather, but generally Byzantine domes were exposed externally and covered with either cement or lead. The Dome of the Rock at Jerusalem was covered with gilt bronze, so dazzling—according to contemporary writers—that it was impossible to look at it in sunlight; in the winter it was covered by a sort of huge tarpaulin of skins to protect it from rain and snow.

Romanesque roofs were occasionally covered with plates of metal (in one case of tin), but half-round tiles were the usual material, of the type illustrated in Fig. 177. Such tiles were used in Italy throughout the Middle Ages and the Renaissance, also in Southern France and in Spain, where the low-pitched type of roof is found. In other parts of France, where Romanesque roofs reached a pitch of 45 deg. or more, it is possible that slates were used. In England tiles were normal, but lead and other metals were also employed. Two striking developments of Romanesque roofing on the Continent were the gabled German spire common in Rhineland churches (represented in England by the little Saxon spire at Sompting in Sussex), and the domes, turrets, and spires, decorated with "scaled" patterns, found on large churches at Périgueux, Poitiers, Angoulême, and Saintes. These churches are earlier than the sculptured domes of the fifteenth and sixteenth centuries in Cairo, and may conceivably have inspired the latter.

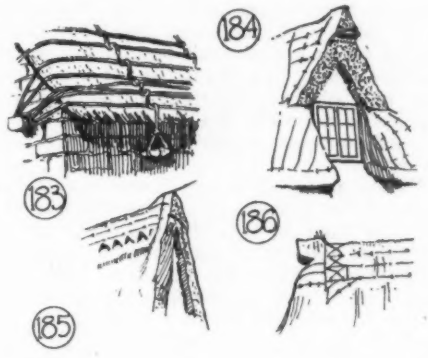
The steep-pitched roofs of Gothic buildings were covered with slates, with lead, or with tiles provided with nibs. In England wood shingles were used in timber districts, stone slates in stone districts, tiles elsewhere, and lead was not common till the later periods, when it was found that it enabled the steep pitch, required for the older materials, to be lowered. On the tower of many an English church may be seen the stone weatherings of a steep roof that gave place, in the fifteenth or sixteenth century, to one of lower pitch. Up to the end of the thirteenth century the usual pitch for an English church roof was 45 deg. to 50 deg., but there are many Gothic roofs in this country far steeper than this, and in Prussia may be seen gables with a slope of 70 deg.

The chief problem for the mediæval builders was the dripping of water from the eaves of their roofs. At any time this tended to damage the foundations and also the lower part of the walls, if these were of soft stone. Bond mentions a flint-built church from the roof of which water dripped for five hundred years without ill effects. In Italy the practice was general, but there were additional reasons for endeavouring to find an alternative method. A loose slate or tile falling

from a high roof is not a pleasant thing to meet, even in Italian sunshine; nor is it easy to fix ladders to a projecting eaves without a parapet, when repairs become necessary. Hence the evolution of the parapet gutter, drained at frequent intervals by spouts or gargoyles. Figs. 178, 179 and 180 show the progressive evolution of the gargoyle, which at first ran direct from the line of the gutter, then discharged from a channel along the axis of the buttress, and finally developed into twin channels and spouts, one on each side of the buttress. Fig. 182 is a section of a typical parapet-gutter. The parapet usually projected in front of the wall-face, following the example of the Romanesque corbel-table under a projecting eaves. But the gargoyle had its disadvantages when discharging water from the lofty roof of the nave or choir of a church on to the aisle-roof far below. Hence the adoption of such an expedient as is illustrated in Fig. 181, where the water is carried over the back of a flying buttress.

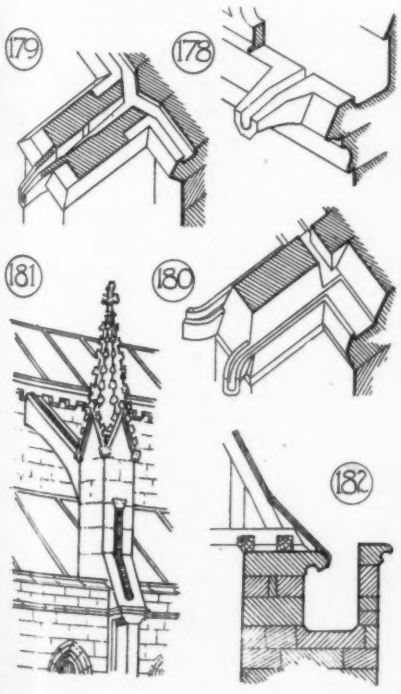
In the early buildings of the Italian Renaissance, before the use of a balustrade became general, the water from the roofs was allowed to drip from overhanging tiles on to the pavement below, as at the Cancellaria and Farnese Palaces in Rome. In France gutters were used in the Middle Ages (from the thirteenth century onwards), but only occasionally in Renaissance buildings. Up to the time when the Place des Vosges was built in Paris (*c.* 1680), gutters are seldom found on roofs of either mansard or span type.

The traditional roofing materials of this country are thatch, shingles, stone slates, lead, tiles, and slates proper. Lead is dealt with in article X, and thin slates are only traditional in certain localities. Thatch is the oldest of these, and *thack* originally implied any form of roofing, as it still does in parts of Yorkshire. Its use is vetoed by most by-laws; it is almost an obsolete material which few men still know how to handle; it was forbidden in London in 1212 on account of its inflammable nature, though shingles were permitted. Yet even to-day it is being used on some of the cottages erected under the Government housing programme, though, as a precaution against fire, chimney-stacks of extra height are required. The material is either uncultivated grass (such as true reed), cultivated grass (such as rye, wheat, barley or oats), heather, heath, furze or sedge. Straw should be unthreshed (hence unbruised), the ears should be reaped with a sickle, and the tall stubble remaining should be mowed and then wetted before use. Heather or heath, as used in the north and in Sussex, makes excellent thatch. It is laid with the roots pointing upwards. Autumn is the best season for thatching. Starting from the eaves, which usually have a projection of 18 in. or so, the thatcher lays his bundles of straw or other material from left to right, and secures them by one of the four following methods, according to locality: (i) by plaited bands of straw about every 4 ft. in the slope of the roof, the lowest band close to the wall plate, and all the bands laced round the spars or rafters; (ii) by rods or "ledgers" laid horizontally *through* the bundles of thatch and secured at each end to rafters, these ledgers being generally out of sight till the thatch perishes, but sometimes arranged in patterns, and often held down by clips of hazel known as "broaches"; (iii) by "broaches" or "ledgers" pegged into a layer of roof resting on the framing of the roof; (iv) by a network of straw ropes covering the whole roof, and held down at the eaves by heavy stones, as shown in Fig. 183, illustrating an example from the Isle of Man. This is the most elementary and probably the oldest form of thatching, now hardly found except in Lewis, though still used for haystacks. Various methods of finishing eaves and ridge are still adopted (Figs. 184-6) in different districts. The roof when laid is "batted" to give a smooth surface, and frequently limed to keep away birds; wire-netting is used nowadays for the same purpose.

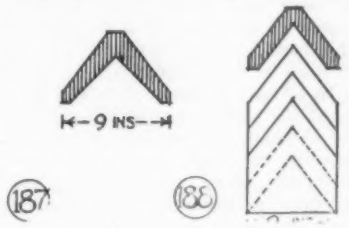


Shingles are wooden tiles, generally of cleft oak, about 12 in. by 6 in. or 8 in., pinned at one end to hang on a lath, and bedded on moss. They were largely used in those districts of England where wood was plentiful and stone slates scarce, even for buildings of importance (e.g., Salisbury Cathedral), but gave place to tiles about the fourteenth century, when it was realised that they were not very permanent. Now one seldom sees them except on remote churches in south-eastern England. They have been continuously used in America since the English occupation, and are now sawn in 16 in. lengths and random widths.

Stone slates have been used from Roman times in this country, and up to a century ago were the traditional roofing material in the north of England, the Cotswolds, Dorset and the neighbouring counties, West Sussex and Surrey, and other large districts. The Yorkshire slates were split in quarries close to the buildings in erection. Their thickness was 1 in. or more, and they were laid to a pitch of 35 to 40 deg. in diminishing courses from the eaves (where they often measured about 2 ft. square) to the ridge (where they might be only 8 in. square). They had a lap of 3 in. or 4 in. (three slates thick) and were hung (with small pegs or pins of oak driven into holes in the slates and projecting from the underside only) to oak laths or battens nailed to the rafters. They were often bedded on moss, the trade of the "mosser" being a recognised calling. Sometimes the row of pins on the lath was bedded in mortar. The ridge was a plain saddle-back stone, somewhat like the example in Fig. 187, but worked by hand out of the solid. It was difficult to form "swept" valleys on account of the large size of the stone slates, so generally the courses were trimmed to the sides of a V-shaped stone valley, though lead is occasionally found. Hips are practically unknown till the eighteenth century, when they were of sawn stone like the ridges. It is unnecessary to add that these roofs were enormously heavy.



The "Cotswold" slates came chiefly from Colleyweston and Easton in Northamptonshire, and from several quarries in Gloucestershire, the former being as a rule larger. Both varieties are very durable if properly seasoned. They were laid much like the Yorkshire slates, but to an average pitch of 55 deg., in diminishing



courses, and with swept valleys. Lead was never used, and buildings were designed to obviate the necessity for lead gutters. Nor were eaves gutters used. Stone ridges (as in Fig. 187) were sawn out of a solid block about 9 in. wide and 3 ft. long, a series of V-shaped cuts being made as shown in Fig. 188.

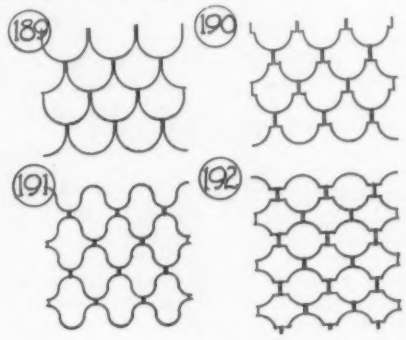
The stone slates from Horsham, in Sussex, were laid in diminishing courses to an average pitch of about 45 deg.

Up to about a century ago neither Welsh nor Westmorland slates were exported, and where used locally they were small and thick. Old Welsh slates of this type are to be seen on some of the Cambridge colleges. Though slate was known to be a good roofing material in the seventeenth century, it was not till the cheapening of transport came when canals were opened that the whole country was flooded with Welsh slates. Then improved methods led to mechanical perfection, and the common, thin Welsh slate displaced the older, rougher, and far more beautiful materials that had gone before. In France slate has always been the traditional material for roofing, often used in polychrome patterns.

Plain tiles are popularly supposed to be an "old-fashioned" roofing, but both tiles and tilers had to be imported into this country during the early Middle Ages. In 1477 the size of tiles was defined by statute as 10½ in. by 6¼ in. by ⅝ in. (dimensions nearly preserved to this day), and from that time onwards they were popular in many districts, notably East Anglia. In south-eastern England, where tiles were largely used, scalloped and "fish-tailed" types were introduced for roofs and for wall-hanging (Figs. 189-192). Ridges were formed of half-round tiles, hips of saddleback tiles and often furnished with gablets. The workmanship of the tiles was rough, and it is the combination of hand-made tiles, rough surfaces, and sagging timber that gives old roofs their variety and charm.

Pantiles seem to have been imported at first from Holland, and an Act of 1722 fixed their minimum dimensions as 13½ in. by 9½ in. by ½ in. It is a question whether their form is suitable for our rainy climate, and the restriction of their general use to farm-buildings and sheds is an evidence of British common sense.

[The illustrations accompanying this article have all been specially drawn, but Nos. 176–180 are based on Choisy's "Histoire," Nos. 181–2 on Bond's "Gothic Architecture," Nos. 184–6 on Jones' "Village Homes," Nos. 187-8 on Dawber's "Cotswolds," and Nos. 189–192 on Curtis Green's "Surrey."]



MEDIÆVAL FREEDOM.—III.

BY REGINALD HALLWARD.

IT used to delight me to walk through the small town in the half-light of the evening, a window here and there illuminated by the saffron glow of the sky which scattered its gold down the street. It looked all the more remarkable at such a time, because the detail then became fused in a general effect which, while it heightened the significance of the old buildings, also hid the defacements which were steadily disintegrating its simple and traditional character. Even the very "upstanding" bank premises, a new addition to the town, with its imitation of local character, its smug and smooth-rubbed exterior, took on some little glamour from the enchantment of the hour; and, fortunately, at such a time the new shoddy plate-glass front of the ironmonger's shop was less observable than the old leaning gables above it, and the quaint-carved panel on the front. This ironmongery shop held no secrets, the front showed like a thousand others, but in the older houses there was the feeling that they held a secret, that from their greater reserve they drew from much more permanent sources, relating us not only to man's temporal wants but to his dreams.

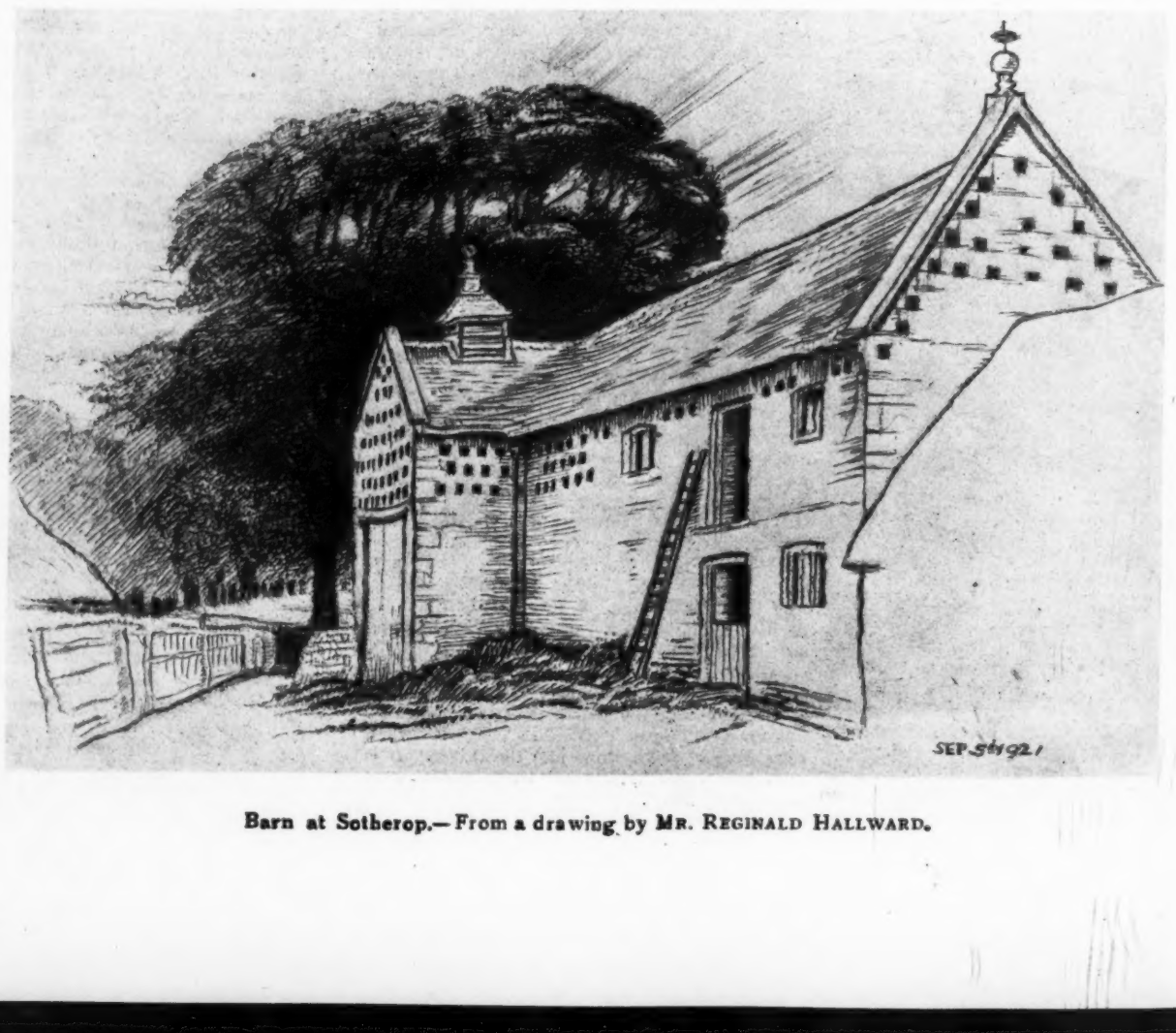
I had been walking for some time across a rather bare stretch of bleak upland though the beautiful valley lay below me all the time, with its scattered hamlets, and here and there an ancient tower revealed among the trees; while through its whole length, so far as I could see, wound a little stream, appearing and re-appearing like a chain of rock crystal threaded through its green and sheltered ways. From where I stood the lane now descended rather precipitously. It had been neglected during the war, and was now almost choked with a splendour of wild flower, seed case, and overhanging branches, but I could see at the bottom the dense foliage of trees, which awakened curiosity as to what they sheltered. It was a little hamlet overarched by the deep green of soaring elms, and on the left a rough, stone-flagged pathway led up from off the lane to where, on a rising knoll of ground, stood the little, rather neglected, church. Near by and looking more prosperous was the ample and rather dignified vicarage—quite "county" in its proportions. But what impressed me most, more than the church or other buildings, in their monumental and austere simplicity were two great stone barns, which stood on a grassy elevation above the roadway. Situated thus, their distance from present life, their aloofness and mystery, seemed to enfold all that background of dignity and detachment which sustains authentic beauty. And the thought occurred to me whether the gain of corrugated iron and "agriculture carried on as a business,"—whether when England, to quote Lord Crewe, is turned into a "gigantic garden suburb," this sort of alternative to mediæval freedom will not perish in the catastrophe of its utter despair.

From the gateway to the field which I looked across, and on which I leaned, shadowed by a great oak tree, there was a footpath leading towards a farm, lying half-hidden within a little fold of the hills, so that only its ancient roofs and gables showed above it; but taking such a colour in the mid-afternoon sunlight, such an air of permanence and tranquillity, that it looked as everlasting as the hills. This sense of endurance, of life resting on itself, not on "corrugated iron" plate-glass windows, and "agriculture carried on as a business," but on an outlook that set beauty and dignity at the forefront of life, and did not interpret it as dependent wholly on necessity and circumstance, but on a belief—a dream—would, I felt sure, return to us again.

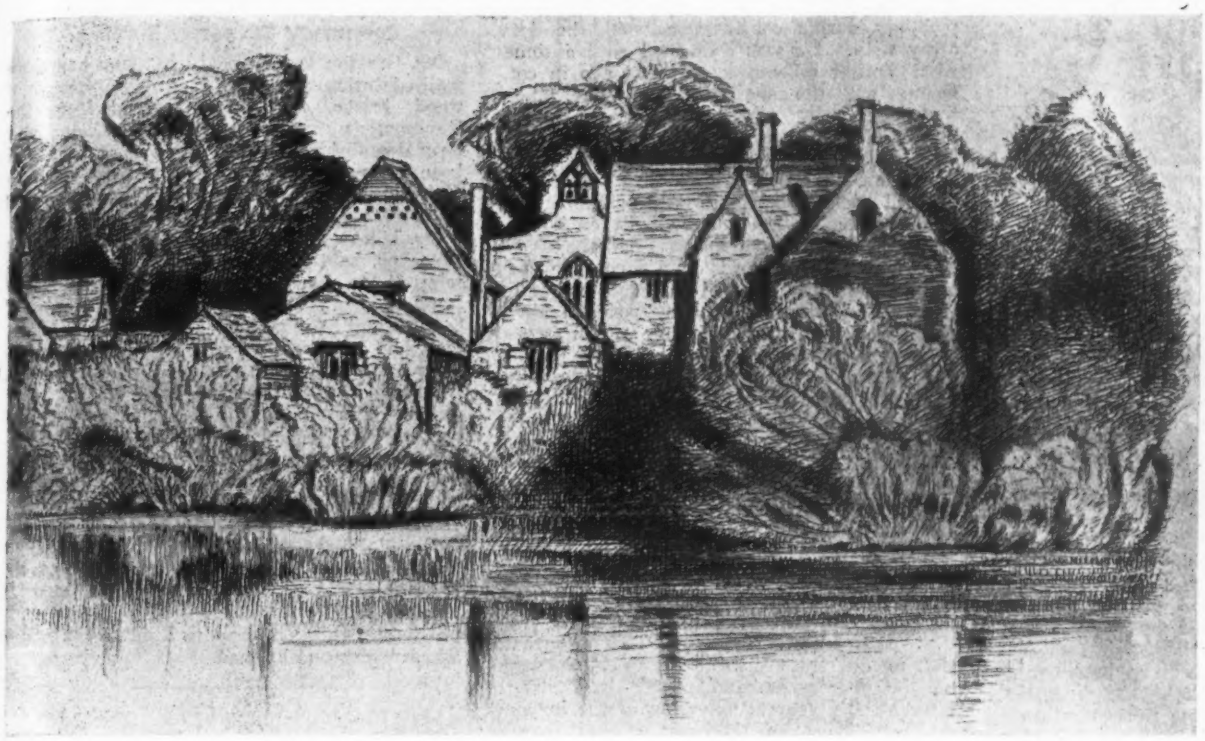
For we must not interpret these untoward signs as altogether governing the present outlook on life—far from it. On the contrary, there is plenty of proof that they are becoming discredited and will be left behind us. When we look away from appearances only, to what people are really feeling and thinking we shall find plenty of confirmation for this view. Things are most often the opposite of what they appear, and the very arrogance of the commercial ideal at the present time points to its downfall.

I used to spend hours in the church alone. I had the place all to myself for no one hardly entered it, the only sound being the distant shuffling of the feet of the old, half-witted sexton occupied on some odd job or other of his own. Every stone of the old building welcomed me like a friend, so complete was the relation between us. It all seemed so natural, inevitable; and its white and graceful interior, sun-bathed on this August morning, held a tranquillity beyond mortal things. And I saw that all that was good then answered to all that was good now, because beauty emerged out of a belief—a dream—which was ours also, when we again recovered ourselves. For what was this freedom to beauty in mediæval times? Not different in nature from Assyrian, Egyptian, Greek, or any other, save in the degree, the direction, and the amplitude of its emergence, greater in Gothic than at any other time, because inspired by the noblest dream. For whenever the grandeur and fulness of life break through its unbelief, the dream comes true in its work.

We have seen how we can reach an inkling of the source of this freedom to beauty in the case of a wounded soldier here and there, and I came only recently, and quite unexpectedly, across another illustration, when taking a youngster over the Tower of London. In the Beauchamp Tower, which was used as a prison, carved panels are to be seen on the surrounding walls, executed by prisoners centuries ago, who in their long solitary sojourn between prison walls found this means for the escape of their spirit—which stone walls cannot hold. There is to be found in some of these carvings, rude though they be, an essential quality. Life rests on itself, untouched by the world, and this gives to them authentic beauty. In this illustration, drawn from the backwaters of life, there lies none the less the heart of the whole matter. For it is not in the great instances of its apotheosis in some rare individual here or there, but in its germ, in this little obscure seed ground, that the roots of beauty are seen to dwell. Stripped naked to his dream man finds himself again. Only as we recover something of this freedom, this detachment from the material things of time and conditions, as we free ourselves from the falsehood of "a fate stronger than men's wills," shall we recover that beauty which precedes freedom and on which now rests the hope of the world: for this is democracy: this is religion.



Barn at Sotherop.—From a drawing by MR. REGINALD HALLWARD.



The Isis at Inglesham.

From a drawing by MR. REGINALD HALLWARD.

ART AND COMMERCIAL VALUES.

WE have received the following communication from Mr. H. Bulkeley Creswell, F.R.I.B.A. :

SIR,—I read the "Note" under the above heading in your issue for March 13, and Mr. James Guthrie's letter, with great pleasure.

"We know," Mr. Guthrie writes, "how inadequate the machinery of business is to cope with the flow of ideas." That, Sir, is most true. Ideas can scarcely reach the public except by co-operation of business organisations, and because these organisations are often moved by motives of money-grabbing, instead of service, we see, on all sides, ideas beating upon doors closed against them—the doors of publishers; theatrical managements; concert agents; cinema directors; of traffickers in goods involving the services of art-workers and craftsmen; and even, in some degree, the doors of the Press and—more surprising still—the doors of firms dealing in practical and scientific objects. The "Beetz Oel" sanitary device is kept out of this country because its introduction would displace existing patterns and reduce the turnover of manufacturers; and a maker of mathematical and scientific instruments refuses to consider a new system of angular notation by which trigonometrical calculations and recourse to tables could be replaced by simple sums, because the new idea involves alterations to existing devices.

It serves no purpose, however, to multiply instances of what is one of the most salient deformities in modern life—as anyone may inform himself by casual observation and reflection. As Mr. Guthrie points out, "The attempt to make money the immediate test of every activity has the effect of putting shifts before policies and of exaggerating the value of unintelligent routine." The tendency of commercial pursuits is often not to benefit the community by making ideas accessible, but rather to do the public a continual disservice by stultifying the ambitions of the sciences and of the arts to inform and elevate.

The commercial instinct prefers to lose money, time after time, in attempts to foist upon its victim—the public—a new version of an ancient stunt rather than risk investment in an idea of genius; it leads commerce to scavenge like a jackal about the laboratory and the studio, and emerge triumphantly with nothing but a sensational dodge for catching flies or an enticing variant of the unending appeal of the woman's leg. In fact, it may be said that the exponent of modern commercial principles as exemplified in the typical person who prides himself—because he can conceive of nothing higher—in being "a business man," is the most mischievous influence; yet he is assuredly settling the destinies of the world and—incidentally—the hash of artists and professional men.

Mr. Guthrie says we need not submit that we can organise. It would be of much interest to me, and I believe, Sir, to your readers in general, if Mr. Guthrie would expand his ideas of organisation. The matter has been turned over in my mind, and the position I have reached is as follows:—

To take steps to depose the commercial ideal, appeals to me as a personal matter; as a thing due to my self-respect, to my most sacred affections, and to the art and profession I practise; and since I originally raised this question I have come to know, in a manner which has impressed me deeply, that my sentiments are shared by many—in fact, I feel justified in saying that indications point to unanimity of conviction among a large majority of those who are observers of, and not mere participators in, life.

It seems to me, Sir, that with evidences of such oneness of heart and mind about us we have, in our various professional societies, perfect organisations for giving prominence to the ideals we stand for and discrediting the principles we abhor. The first step is to declare the facts; the second to refuse to regard the human ideal as moribund but to affirm it for what it is—the impulse from which every wholesome motive springs, the soil in which every true achievement is rooted, the force that has bestowed upon the world everything to which civilisation is indebted, the fount of all inspiration; and the third step is to display, in all its subtle ramifications, the fungoid growth of the commercial ideal and denounce it for the parasitical imposition it assuredly is.

The mere consciousness of the true complexion borne by modern life, and the knowledge that that consciousness is shared by others would, alone, give a colour to thought that would permeate our public utterances and private talk; and the influence of a few leaders among us who would find opportunity to develop the idea would soon establish it as an acknowledged principle which must either be accepted or frankly disavowed. As soon as that point were reached action would follow, and the position be won. By "action" I mean the expression of thought in conduct; such action would be limitless in its ramifications, and decisive. It is unsatisfactory to give illustrations of the applications of a principle, because all such examples present themselves as typical; whereas they cannot so be, for they must presume an individuality in the principle, and so become characteristic of a personality rather than of an idea—but certain crude instances of the sort of action that might be taken may, with this warning, be suggested.

Architects often receive clammy, fawning, hypocritical letters making a disgusting pretence of almost brotherly concern for the welfare of the person addressed, with the idea of cadging an order for goods, or winning an advantage over other dealers. I have myself received letters from a person who gushingly tried to put me under obligations to him because he enclosed a twopenny article with the name of his commodity incised upon it; and from a firm which, with sycophantic convulsions, pressed me to "permit them to exchange" my old machine for a new one. Such nonsense would, I think, produce spiritual nausea in everyone if custom had not staled us to the usage; but if natural instincts were awake to the ignominy of a state of affairs which leads men to compete in flinging dignity, self-respect, and reputation for sincerity to the winds in the hope of selling a pot of paint or a toothbrush, we should *all*, I fancy, return the twopenny article unstamped with a brief comment; and *all* of us graciously consent to accept a new machine in exchange for our old one, and defend ourselves against claims behind a copy of Nuttall's Dictionary. If we all did this the degradation of life which we thus resented, and the spirit behind it, would alike languish.

In two particular matters I think architects should be unanimous in action, now and always; first, in employing on all occasions *individual* art workers and craftsmen, and on no account ever placing work with those commercial firms who keep artists—as a dairyman keeps cows—barred in an obscurity where natural gifts are blighted by conditions of work, and where inspiration in design (handed out all hot, against time, to every inquirer) is poisoned by the demand for the slick, the popular, the expected, the readily understood, with which to feed the strutting complacency of the firm's chief tout and salesman; second, that we should resolutely turn our backs upon firms who, in courting our notice, violate the ordinary human decencies properly observable in the intercourses of Englishmen.

THE CONCRETE INSTITUTE.

FLOATING DOCKS.

AT a meeting of the Concrete Institute, held at 296, Vauxhall Bridge-road, S.W., last evening (Thursday), MR. S. F. STAPLES, M.Inst.C.E., M.I.N.A., read an interesting paper on "Floating Docks." After giving an outline of the history and development of these structures, and describing some of the largest modern floating docks, he said one of the great difficulties in designing floating docks in reinforced concrete lay in the great weight of material in the skin plating. The minimum thickness which could be used towards the centre of the bottom plating of the pontoon was 5 in., thinning down to 4 in. at the outsides. That only gave ½ in. of cover outside, which was hardly enough for safety in ordinary circumstances, and when it was considered that a very large portion of it could not be inspected after the dock was once afloat he would not care to recommend it. Moreover, the difficulty of getting about an acre of that thickness dead flat would be considerable. On the other hand, if more cover were added the weight went up considerably, and the dock had to be of greater dimensions to carry the extra weight, thus inordinately adding to its cost. Even by keeping the weights down as low as possible the total weight of the 8,000-ton concrete dock was 9,570 tons as compared with a steel dock of the same dimensions on plan of 3,584 tons. That necessitated the concrete pontoon being made 16 ft. deep, as against 10 ft. 6 in. for the steel one. In order to lift an 8,000-ton ship in 2½ hours in a steel dock 350 i.h.p. were required, whereas an additional 150 i.h.p. were required to lift the same ship in the same time on the concrete dock.

As a result of his experience as Director of Reinforced Concrete Construction at the Admiralty it had been fairly conclusively demonstrated to him that reinforced concrete was not an ideal material with which to build a ship, and to his mind the same remark applied to a floating dock. It must be borne in mind, too, that joints in a dock would be very difficult to make, and consequently a concrete dock would not be self-docking. If, therefore, any of the skin of the dock under water cracked in the slightest degree there would be no means of detecting it, and the reinforcement would slowly decay until brought to light by disaster. When a floating dock was moored in a busy harbour there was a certain risk of collision, which in the case of a steel dock was no great matter, but with a concrete dock it would be difficult to repair, partly owing to the nature of the material and also to the fact that the under-water portions could not be brought above the surface.

For these and other reasons it appeared that a floating dock of the usual form should not be made of reinforced concrete, but there was another form in which it might be found advantageous to make use of this material which was worthy of attention. If a reinforced concrete floating dock were designed with the longitudinal and transverse girders of normal strength, but with the skin plating only just strong enough to enable it to float, and one end were closed in a manner similar to that in which the side-walls were constructed, it would form a complete lining to a graving dock. Where the ground was bad the whole of the excavation could be done in the wet, and the floating lining towed into place and lowered so that it rested lightly on the bottom. Weak concrete could be forced down pipes led through the pontoon deck and bottom so as to ensure a firm and even seating for the floating dock, which would then be filled up solid with weak concrete. The deformation of the walls of a dock thus constructed should be very small, so that the sill and side facings for the caisson to bear against would be built before the floating dock was lowered, and the whole of the cofferdam and pumping during construction would be done away with. He was connected with a somewhat similar scheme some years ago in connection with the new harbour of Kobe. There the quay walls were constructed of hollow blocks of reinforced concrete about 120 ft. long, varying from 35 ft. to 41 ft. high, and having an average breadth of about 30 ft., the finished weight being in the neighbourhood of 6,000 tons. These were built on a grid erected on the edge of the sea, and the blocks were picked off the grids by a depositing dock and subsequently lowered into deep water by the dock. Before filling they weighed about 2,000 tons, so that they could be then towed to their destination and sunk by the admission of water. That proved a very successful method of construction, and with modifications had been followed in other harbours.

THE WEEK IN PARLIAMENT.

Westminster, WEDNESDAY.

State Housing.

Sir A. Mond, in reply to Mr. T. Thomson, said that he did not propose, in view of the large amount of work in hand, to ask the House to agree to any general extension of the housing scheme. There was, however, a small margin of the 176,000 houses in hand which he was using to sanction the erection of further houses by local authorities in special cases.

The Sale of Government Houses.

Sir A. Mond informed Sir J. Norton-Griffiths that local authorities were requested by the Ministry of Health some time ago to prepare schemes for the sale of houses. The question of what further steps were desirable was engaging his attention.

Re-Assessment Burdens.

Lieutenant-Colonel Hilder asked the Minister of Health if he was aware that in current re-assessments for local rates rateable values were in some cases being increased by 100 per cent. and over, and that this would impose in some cases an almost impossible burden on small property holders, who were already suffering severely from the deterioration in values owing to the competition of Government subsidised cottages; and would he consider the possibility of a remedy.

Sir A. Mond said his attention had not been drawn to any cases of the kind referred to, nor was he aware that the competition of houses built under the Government housing scheme was causing deterioration in the values of other properties. A general re-assessment of an area did not necessarily involve an increased rate burden, and in cases of over-assessment the law provided a method whereby persons could appeal against the rateable value placed on their property.

London University Site.

In reply to a question as to the site for the University of London in Bloomsbury, Mr. Hilton Young, Financial Secretary to the Treasury, said the Bloomsbury site still remained in the possession of the Government and was administered by the Office of Works. A small portion of the site, however, was occupied by the University of London on a subtenancy from the Y.M.C.A. and the University had erected thereon, with the consent of the Government, an Institute of Historical Research. The Senate of the University in accepting the Government's offer of the Bloomsbury site stipulated *inter alia* that an agreement should be concluded between the Government, the Council of King's College and the Senate of the University as to the terms of the removal of King's College from the Strand to the Bloomsbury site. The Government accepted this condition, but such an agreement had not yet been concluded. No funds had yet been collected by the University for the erection of permanent buildings on the te.

Government Temporary Buildings.

Mr. Grattan Doyle asked what sum had been realised during the past 12 months by the sale of wood, bricks, and other material from the Government temporary buildings which had been demolished; what extent in acreage had been cleared; and whether the material so disposed of had been sold by public auction or by private contract.

Mr. Hilton Young, Financial Secretary to the Treasury, said he assumed that the question referred to Government offices within the London area. Those buildings, together with fixtures and fittings, but excluding all furnishings, had been sold on sealed tender to demolition contractors on condition that everything, including the foundations, was removed by certain dates specified in the contracts. The contractors also had to clear the sites and reinstate ground except only in so far as top soil was concerned. At present work had only been completed in respect of three buildings, namely, the buildings in Victoria Tower Gardens, the Office of Works Stores in Regent's Park, and the Admiralty (Annexe) Buildings on the Mall, St. James's Park. This represented a total area cleared of approximately six acres. It was not in the public interest to disclose the prices which had been obtained.

HOUSING AND TOWN-PLANNING NOTES.

Blaydon Housing Scheme.

The Blaydon Urban Council has decided to advertise for new tenders for the erection of 40 houses at Chopwell.

Individual Ownership of Houses.

The Manchester Corporation, it is reported, has prepared a scheme for advancing money in certain circumstances to persons who desire to buy the houses in which they live. For the present the scheme will be confined to a hundred houses, and it applies only to houses built by private builders within the city of Manchester since December 7, 1921, and of a market value, in the opinion of the City Council, of not more than £800. No one who is already the owner of a house to which the Small Dwellings Acquisition Act applies will be granted an advance. The amount advanced will be limited to 75 per cent. of the market value of the house, and in any case will not exceed £500. The repayment of advances, with interest, is required by equal half-yearly instalments within a maximum period of 20 years, but by giving a month's notice anyone may repay the balance of the principal, together with the interest due up to the date of repayment. The rate of interest has been fixed by the Ministry of Health at 6½ per cent., and it is considered likely this rate may now be reduced.

The Cost of House-Building.

By letting tenders for eight new houses at Steeton, at figures which work out at £420 per house, the Keighley Rural District Council claims to have set up a record for the West Riding in regard to housing. The houses, Type C, are to be built in two blocks of four each. The plans, prepared by the Rural Council Surveyor (Mr. T. Burton), provide for an entrance hall on the ground floor, with a living-room 12 ft. by 12 ft., and a kitchen 15 ft. by 10 ft. Upstairs, there are three bedrooms, a bath-room, and w.c., and there is provision for hot water on to the bath and in the kitchen.

The Victoria and Albert Museum.

The "Jones" collection of French furniture, porcelain, metal-work and other objects has been rearranged in rooms 65–69 at the Victoria and Albert Museum, and is now open to the public. This collection, chiefly of French art of the 18th century, comprises French furniture of the periods Louis XIV to XVI; porcelain of Sèvres, Dresden, Chelsea and Oriental manufacture; French work in ormolu (gilt bronze); paintings; miniatures; snuff boxes; and numerous other works of art.

THE BUILDING TRADE.

REDUCED OUTPUT.

By W. E. GARNETT, P.A.S.I.

THE accompanying tables are intended to show, in some measure, the effect of reduced output on the part of labour in the building trade.

In Table "A," the cost of £100 value (August, 1914) of actual building is shown divided under the headings of mechanics, labourers, and materials and plant in all trades. Establishment and other charges, profit, &c., are eliminated, the £100 representing the cost of the work as would be entered for wages and materials in the contractor's prime-cost book.

Table "B" shows the increased cost in December, 1920, allowing only for the increase in wages and prices of materials.

Table "C" shows the increased cost, allowing for increases as Table 'B" and for a reduced output of work performed before the war by 33⅓ per cent.

Much depends on style and mode of building, but a typical building in London of the following construction has been selected:—

Foundations	..	Portland cement concrete.
Walls	.. ..	Stock brick.
External facings	..	Part picked stocks and part cement rendered.
Sills, steps, and coping	.. ..	Artificial stone.
Roof	.. .. ..	Part timber and tiles and part concrete flat and asphalte.
Floors	.. ..	Solid concrete and boarded.
Internal facings	..	Part picked Flettons, part sirapite, and part tiled dado.

No account has been taken of site work or drainage; the figures therefore refer to building and foundations only. The period of time on which the following tables are based is from August, 1914, to December, 1920, the lowest and highest costs of building work during the past 7½ years.

It has been found that for pre-war and post-war periods there is practically no difference in the percentages of each trade to total cost. These percentages were obtained by an average of six or seven buildings of the same construction as already described, and are divided into proportionate parts, as generally accepted in pre-war times, for mechanics, labourers, and materials and plant.

The percentages rise in rates of wages for skilled and unskilled labour are:—

Bricklayer, Mason, Tiler, Carpenter, Joiner	143½
Smith	194¼
Plasterer	143½
Plumber	137½
Glazier, Painter	200
Labourer	212½

The wages part of Table "B" is obtained from Table "A" by using these percentages, which do not allow for any reduction of output. The average rise in the cost of the mechanics' portion is about 150 per cent.

The wages part of Table "C" is based on Table "B," but allowing in addition for a reduced output in all trades of an average of 33⅓ per cent. The average rise in cost on pre-war of the mechanics' portion is 275½ per cent. and on the labourers' portion 368¾ per cent.

The percentage rise from 1914 to 1920 in prices of materials for each trade was obtained by abstracting the required materials from the properly-prepared bills of quantities and pricing at the current prices for the respective dates. It will be apparent that each percentage is properly "weighted" in proportion to the quantities of materials used in each trade, and with due relation to a complete building. The total cost of material for each trade in December, 1920, was in excess of that for August, 1914, by the following percentages:—

Excavator	226 %
Concreter	196
Bricklayer	138½
Mason	168½
Tiler	305½
Carpenter	259⅓
Joiner and ironmonger	231
Founder and smith	222
Plasterer	195
Plumber	104⅔
Glazier	179
Painter	115¼

It will be noticed that of the total cost the proportions of labour and materials will vary approximately as follows:—

	Labour. Per cent.	Materials and Plant. Per cent.
Table "A"	40	60
" "B"	37½	62½
Output reduced by—		
16⅔% December, 1920	42	58
33⅓% " "	47½	52½
50 % " "	54½	45½
75 % " "	70¾	29¼
100 % " "	—	—

If output in the production of materials used by contractors is restricted in the same proportion as already indicated in the Tables for direct labour, the amount paid under this head by a client for which no return is given would equal approximately £40. If to this sum be added £52 (as already indicated in the tables), we get £92, which is nearly equal to the pre-war cost of building.

Making allowance as regards labour for restrictions in output the percentages as given below must be added to the original cost to arrive at the present cost of the same quantity of work. As computed in Table "C," 50% on cost shown in Table "B."

Output reduced by	Add to original cost	
Nil	Nil	(Prosperity)
16⅔%	20%	
20 %	25%	
25 %	33⅓%	
33⅓%	50%	
40 %	66⅔%	
50 %	100%	
75 %	300%	
100 % (strikes, lock-outs, unemployment)	—	(Poverty)

Building Collapse in the Midlands.

We are informed by a prominent builder in the Midlands that the report in our issue for March 3 of the remarks of the judge in giving judgment in a case in which compensation was claimed by the widow of a man killed in the course of the erection of a building was incorrect, as the building was in no way disturbed, and that the only part which fell was the cornice; the building on which the cornice rested did not fall.

TABLES SHOWING THE EFFECT OF REDUCED OUTPUT IN THE BUILDING TRADES.

Trade.	Percentage of each trade to total cost.	Percentage expressed in £ s. d.	"A" August, 1914. Mechanic.			"A" August, 1914. Labourer.			"A" August, 1914. Materials and Plant.				"B" December, 1920. (No allowance for reduced output.) Mechanic.			"B" December, 1920. (No allowance for reduced output.) Labourer.			"B" December, 1920. (No allowance for reduced output.) Materials and Plant.				"C" December, 1920. (Allowance for reduced output.) Mechanic.			"C" December, 1920. (Allowance for reduced output.) Labourer.			"C" December, 1920. (Allowance for reduced output.) Materials and Plant.			
	—		%	£	s.	d.	%	£	s.	d.	%	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.	£	s.	d
Excavator	1½	1 10 0	—				90	1	7	0	10	0	3	0	—			4	4	4	0	9	9		—			6	6	6	0	9	9
Concrete	8½	8 10 0	—				17	1	8	10	83	7	1	2	—			4	9	9	20	17	8		—			6	14	8	20	17	8
Bricklayer	27	27 0 0	24½	6	12	2	8½	2	6	0	67	18	1	10	16	1	11	7	3	9	43	2	8		24	2	11	10	15	7	43	2	8
Mason	2½	2 10 0	55	1	7	6	5	0	2	6	40	1	0	0	3	7	0	0	7	9	2	13	7		5	0	6	0	11	8	2	13	7
Tiler	2½	2 10 0	14½	0	7	3	5	0	2	6	80½	2	0	3	0	17	8	0	7	9	8	3	3		1	6	6	0	11	7	8	3	3
Carpenter	8	8 0 0	27	2	3	2	3	0	4	10	70	5	12	0	5	5	3	0	15	1	20	2	2		7	17	10	1	2	8	20	2	2
Joiner & Ironmonger	19	19 0 0	62	11	15	7	1	0	3	10	37	7	0	7	28	13	10	0	12	0	23	5	4		43	0	9	0	18	0	23	5	4
Smith & Founder	11	11 0 0	15	1	13	0	5	0	11	0	80	8	16	0	4	17	3	1	14	5	28	7	0		7	5	11	2	11	8	28	7	0
Plasterer	11	11 0 0	41	4	10	2	14	1	10	10	45	4	19	0	10	19	6	4	16	4	14	11	8		16	9	3	7	4	6	14	11	8
Plumber	4	4 0 0	16	0	12	10	9	0	7	2	75	3	0	0	1	10	6	1	2	5	6	2	9		2	5	9	1	13	7	6	2	9
Glazier	1	1 0 0	15	0	3	0	—		—		85	0	17	0	0	9	0		—		2	7	5		0	13	6		—		2	7	5
Painter	4	4 0 0	55	2	4	0	5	0	4	0	40	1	12	0	6	12	0	0	12	6	3	9	1		9	18	0	0	18	9	3	9	1
	100	100 0 0		31	8	8		8	8	6		60	2	10	78	13	11	26	6	1	173	12	4		118	0	11	39	9	2	173	12	4
				£100											£278 12 4										£331 2 5*							

[*This amount is approximately the cost (December, 1920) of £100 value of work in August, 1914.]

THE ANALYSIS OF BUILDING COSTS.

WE have received the following communication from Mr. T. Sumner Smith, of Manchester:—

"I have read with considerable interest the paper, and studied carefully the tables accompanying it, by Mr. B. Price Davies, in your issue for the 10th instant. A paper read at an institution such as The Surveyors' Institution is worthy of more than a passing notice, especially when that subject matter, as in this instance, is, as far as the building trade is concerned, a comparatively new one and passing through an experimental stage. Therefore, I think it will be agreed that it should be subjected to a most careful scrutiny and analysis, for when issued in the *Proceedings* of the Institution it may bear in the minds of the public the stamp of authority. I wish it to be understood that my remarks are penned in all friendly criticism, and hope they will be accepted as such.

"Mr. B. Price Davies has given us several tables purporting to be an analysis of building costs, and the question arises from a study of them: What is the purpose of it all? I cannot imagine that Mr. Davies intends it to mean either a recommendation for or against cost accounting in regard to building works. It serves neither purpose to any effect. Nothing in what Mr. Davies has said, but rather in what he has left unsaid, and the deductions to be drawn from the table, were to be a recommendation. As an argument against the adoption of cost accounting it fails, inasmuch as it is not an example of such as is generally understood.

"Before dealing specifically with the paper it is as well to state what cost accounting is, to avoid confusion and misunderstanding. Cost accounting is quite distinct from financial accounting, for it is fundamentally a question not of technique but of policy—not how to get at certain figures but what figures to try to get at, and how to combine them. Cost accounting is a means of ascertaining the truth by analysis of the cost production of each detail. In financial accounting the truth may not always be revealed, for special reasons, in the 'profit and loss account'—as an illustration, a provision may have been made therein for contingencies. The whole object of cost accounting is simply an aid and service (correctly applied) to management; to check estimates; to ascertain the cost of each unit of production (and if these are right the intelligent manager need not worry about the balance of profit and loss, as he knows that will also be right). On this knowledge he may see where improvements are possible with a view to reducing the cost of production or earning greater profits.

"The first two tables given by Mr. Davies reveal greater truths than any of those he has stated. I hope I shall be pardoned for what I am about to convey, but as mentioned beforehand, an analysis of costs is to arrive at the truth, and there are times when the truth ought to be stated. This seems to me to be such an occasion. In the first table the man-hours of D exceeded the man-hours of A by over 50 per cent., and exceeded those of B and C by over 33⅓ per cent. in the erection of parlour-type houses of a similar type. The difference between B and C is very slight, and neither of these exceeds A to an alarming extent. Hence, the inference is that D was either lacking in administration or that 'ca' canny' was practised in a frightful manner. But on an examination of the second table giving the averages of a batch of ten it will be noted that the output, reckoned on values, has been greater in post-war than the pre-war period, except that of unskilled labour. Hence, if these figures are correct, which there does not seem any reason to doubt, we have here conclusive evidence that the cry of 'ca' canny' against the workers was an unjust and a fallacious one.

"The question therefore arises: 'Who then was responsible for these high costs of housing, since there was a greater output in post-war than pre-war, and seeing that the increases in wages were not alone answerable for these high costs?' Again, the costs of housing have come down enormously, stated to be from £1,100 to £400 by the Ministry of Health in Parliament on the 13th instant, and this cannot be attributed to the decrease in wages and materials alone. If D in the first table is to be taken as a criterion, then the blame must seem to rest largely with builders, for I take it that D did make a profit, and, if so, then A B and C must have made fabulous profits on labour alone.

"The next question arises: Why were these profiteers allowed to go on? I do not wish to comment upon that, either as to the right or wrong of it, but it is nevertheless of interest seeing that there has been so much controversy arising out of Sir Charles Ruthen's paper.

"In the third table, Mr. Davies claims for it that it shows the dangers of incorrectly-priced bills. But he fails to show conclusively why A was priced too low and B too high. He gives a plausible reason: 'B also included for a greater quantity of brickwork in foundations than might actually be the case.' If that was so, then it is not a correct analysis to begin with, and further, it is not an argument as to the correctness or otherwise of the priced bills.

"Table 4 would seem to have been built up largely upon the assumption that the number of bricks, irrespective of size, laid by a brick layer was 75 per hour, and the assumption that the depth of 'frog' was ⅜ in. He evidently in making his table mixed these with a little theorising and a few calculations; and lo!—the result, a conglomeration of empirical figures. It is astonishing to think that anyone would claim for such that it is an analysis of a cubic yard of brickwork. The logical deduction from this table—reducing it to an absurdity—would be to make bricks one cubic foot in size with a handle in them after the manner of a 28 lb. weight which would also act as a 'frog.' Then as there would be only 27 bricks to a cubic yard the time would be a little under 22 minutes as against 3·80 hours, being the best time stated by him!

"Lastly, but not the least, I came to the last table, said to be an analysis of the costs of a semi-detached house of the parlour type. For some peculiar reason he has adopted a 'unit' as a standard in his analysis, and assumed that the house was worth 10,000 units, and fixed the value of a unit at 2s. and said to be equivalent to one hour's work. This wonderful table is made up of three analyses. In the first, he states that labour's value is 3,000 units, materials 6,500 units, and profit 500 units. The second analysis gives these in greater detail. Labour, according to these analyses, is 30 per cent. of the cost, materials 65 per cent., and profit 5 per cent. I do not know how he reconciles this with his statement: 'I almost feel that an assumption that all items were roughly made up of labour 45 per cent., materials 50 per cent., and profit 5 per cent., would have brought me to the determination with far less trouble.'

'The third analysis is obviously for an entirely different purpose, but I do not see what advantages accrue to the trade by ascertaining the value of *all* labour in the construction of a house, given in the table as 87.4 per cent., the remaining 12.6 per cent. being absorbed by profit and royalties. It will be noted that even these figures have been arrived at partly by proportion—not analysis. However, they might be useful to the political economist, but are certainly of no material value to the estimator and of no service to management.

"Mr. Davies makes a passing remark in his paper that 'the sooner the standard system of quantities is ready the better,' but I fail to see any relation thereto. However, the paper has its value in that it is a typical example of how not to do a thing."

THE CRISIS IN THE BUILDING INDUSTRY.

We have received the following communication from Mr. G. H. Webber, of Pembroke Dock:—

"SIR,—I am venturing to reply briefly to Mr. S. Stranks, who, in your issue for February 24, makes an unwarranted attack on the building trades employers. He seems to attribute the crisis in the building trades mainly to the injustice of the employers—possibly because they refuse to be dictated to by the organisers of building trade workers—and because the employers wilfully and wrongfully refrain from allowing the operatives' organisation to state exactly what profits the employer shall have!

"The 44-hour week argument against the employer is all 'bunkum.' All the men I have spoken to on the matter express a keen desire for longer hours, but are barred by their respective unions, however much the men regret it; I have not heard one in favour of the 44-hour week, although employing on an average 30 to 40 men. That an employer should wish a man to work longer than his physical energy would allow him is preposterous. The employers know only too well that many of the men will not work a 44-hour week and work properly, and if it were even less than 44 the output would not be improved upon one iota in favour of the employer, and the amount of supervision required in these days appears much greater than before.

"Although Mr. Stranks may be perplexed and express his own opinion in a one-sided manner, the idea of educating the public sounds all right, and I presume with him it is only a small matter, but has he ever tried to educate in the right direction the worker he is championing? For a long time now the idea has been rampant amongst the workers that it is their turn now, and that they are at last able to get their own out of the masters; with such an idea it is small wonder why 'ca' canny' has lived so long. To find bricklayers laying 300 or less bricks per day is galling. To see a man pick up a brick, admire it on three sides, lay it down, look at it again, pick it up once more and admire the other sides, then tap it to see if it rings, fetch a trowel of mortar, twist it about and turn it over about four times, becomes positively sickening to the one who has engaged him. Multiply this sort of thing for at least 75 per cent. of the staff and one begins to see a little only of what the employer has to contend with. The high cost of material need not enter into it, though here again the worker largely contributes.

"It is common knowledge (except to the employees) that to get a profit from building is a thing of the past—with few exceptions; and these only where some unfortunate being *must* have the building or buildings. The outlay for a 7-room house would involve a sum running into four figures. Invest the sum of £1,000 at a moderate figure, say, 5 per cent., and we have £50 per annum interest, without trouble or speculation. To ask £70 a year, taxes included, would cause some consternation, and the builder or owner would be dubbed a profiteer. If £50 were asked without taxes he would be losing money, so until the workmen and their leaders realise that they are not keeping pace with facts I am afraid the building crisis will not be solved.

"No one except the trade union officials would talk of unduly reducing the wages in such a cold, careless manner. Employers are surely quite as rational, and equally capable of knowing what a fair wage is, although they are suspected of being only fit for the paying out of wages to their more clever employees. The bludgeon mentioned by Mr. Stranks is being wielded by the trade union leaders and brought into effect by the support obtained from the uneducated masses concerned.

"One of the items that perplexes Mr. Stranks is the flagrant inconsistency of the body of federated builders. What a consistent body the building trade workers are! 'Persistent' is the word, but persistent only in doing that which

they would do and have others do, and holding the bludgeon over the employer's head. Fortunately for the country generally we have a saner element alive than some organisers would choose for a long term of office, and I am happy to see that honest workmen at least have realised the time has come to brace themselves up, play the game, and work like men. The crisis will soon be over if their officials can return to normal."

WAGES AND HOURS IN THE BUILDING INDUSTRY.

THE National Wages and Conditions Council for the Building Industry, at its meeting on March 17, considered what variation in wages payable to operatives engaged in the building industry should be made to meet the abnormal conditions prevailing; consideration was also given to the question of the length of the working week. The Council resolved:—

"That a reduction of 2d. per hour shall take place on and from April 1, 1922, and a further reduction of 2d. per hour on and from June 1—both reductions to be on account of future adjustments rendered necessary by the operation of the sliding scale agreement.

"The working hours for the months of December and January to be reduced to 41½ per week, and the further consideration of the alteration of the summer working hours to be deferred until the January (1923) meeting. In the event of failure at that meeting to agree on the question of the length of the working week, the employers' present position as regards that question is not to be prejudiced. The operatives are to have the opportunity of confirming the second reduction above mentioned. In the event of the operatives failing to agree to the second reduction, the employers' present position with regard to the working hours is to remain unprejudiced.

"In the application of the second reduction special consideration is to be given by the Council, or a committee thereof, to the mitigation of the incidence of the reduction upon the wages of the lower-paid districts, and especially where the hourly rate of building trade labourers would be reduced below the rates obtaining under the civil engineering awards."

The Attitude of the Building Guild.

In an interview last week, Mr. S. G. Hobson, Secretary of the National Building Guild, stated that in the event of a lock-out in the building industry owing to the opposition of the operatives to the proposed extension of working hours, the Guild would act strictly upon the instructions of the Federation of Building Trade Operatives, whatever they might be. The Building Guild did not regard itself as an employing organisation; it would accede to any requests which the Federation might make to carry on work during the lock-out if there were one.

Building Wages in Scotland.

The Scottish Building Contractors' Association, at its meeting in Glasgow on Monday, heard reports from the Association's delegates to London in connection with wages. The delegates stated they had made a strong representation to the English employers that it was necessary that a substantial out in wages should take place at once. The Association decided to intimate to the operatives and labourers that their wages should be as follows: Masons and bricklayers, 1s. 10d. per hour from April 1, and 1s. 8d. from June 1; labourers attending masons, 1s. 5d. from April 1, and 1s. 3d. from June 1.

Warrington Master Builders' Association.

The annual dinner of the Warrington and District Master Builders' Association was held at Warrington last week. Mr. Henry Collin presided, and amongst the guests were the Mayor (Alderman James Evans), Mr. Thomas Howarth (President, N.W. Federation of Building Trade Employers), Councillor J. T. Locker, Mr. S. Wigham, Mr. F. Warburton (Vice-President), Mr. H. Fairclough, Mr. F. J. Barnish, Mr. John Dolan, Mr. H. G. Roberts, and Mr. C. T Locker.

RATES OF WAGES IN THE BUILDING TRADE.

The following are the rates of wages in the building trade in England and Wales. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Accrington	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Altrincham	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Ashton-under-Lyne	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Barnsley	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Barrow-in-Furness	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Barry	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Bath	1/9	1/9	1/9	1/9	1/9	1/9	1/9		1/4½	
Bedford	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Birkenhead	2/2	2/2	2/2	2/2	2/2	2/2	2/2		1/9½	
Birmingham	2/0	2/0	2/0	2/0	2/0	2/1	2/0		1/7	
Bishop Auckland	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Blackburn	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Blackpool	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Bolton	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Bournemouth	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Bradford	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Bridgwater	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2½	
Brighton	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Bristol	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Burnley	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Burton-on-Trent	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Bury	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Cambridge	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Cardiff	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Chatham	1/7	1/7	1/7	1/7	1/7	1/7	1/7		1/3	
Chelmsford	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Cheltenham	1/9	1/9	1/9	1/9	1/9	1/9	1/9		1/4½	
Chester	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Chesterfield	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Colchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Coventry	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Crewe	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Darlington	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Derby	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Doncaster	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Dudley	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Durham	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
East Glam. and Mon. Valleys	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Exeter	1/8	1/8	1/8	1/8	1/8	1/8	1/7		1/3½	
Folkestone	1/7	1/7	1/7	1/7	1/7	1/7	1/7		1/3	
Gloucester	1/9	1/9	1/9	1/9	1/9	1/9	1/8		1/4½	
Grantham	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Grays	2/0	2/0	2/0	2/0	2/0	2/0½	1/11		1/7	
Grimsby	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Great Yarmouth	1/7	1/7	1/7	1/7	1/7	1/7	1/7		1/3	
Guildford	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Halifax	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Harrogate	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Hartlepools	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Hastings	1/7	1/7	1/7	1/7	1/7	1/7	1/7		1/3	
Hereford	1/9	1/9	1/9	1/9	1/9	1/9	1/8		1/4½	
Huddersfield	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Hull	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Ipswich	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Lancaster	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Leamington Spa	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Leeds	2/0	2/0	2/0	2/0	2/0	2/-	2/0		1/7	
Leicester	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Lichfield	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Lincoln	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Liverpool	2/2	2/2	2/2	2/2	2/2	2/2	2/2		1/9½	
Llanelly	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
London	2/0	2/0	2/0	2/0	2/0	2/0½	1/11		1/7	
Loughborough	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Luton	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Maidstone	1/7	1/7	1/7	1/7	1/7	1/7	1/7		1/3	
Manchester	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Mansfield	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Merthyr Tydfil	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Middlesbrough	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Newcastle-on-Tyne	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Newport, Mon.	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Northampton	1/10½	1/10½	1/10½	1/10½	1/10½	1/.0½	1/10½		1/5½	
Norwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Nottingham	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Oakham	1/9	1/9	1/9	1/9	1/9	1/9	1/9		1/4½	
Oldham	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Oxford	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Plymouth	1/10	1/10	1/10	1/10	1/10	1/10	1/9		1/5½	
Pontypridd	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Portsmouth	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Preston	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Reading	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Rochdale	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Rochester	1/7	1/7	1/7	1/7	1/7	1/7	1/7		1/3	
Rugby	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
St. Albans	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
St. Helen's	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Scarborough	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Sheffield	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Shrewsbury	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
Southampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Southend-on-Sea	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Southport	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
South Shields	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Stockport	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Stockton-on-Tees	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Stoke-on-Trent	2/0	2/0	2/0	2/0	2/0	1/11	2/0		1/7	
Stroud	1/8	1/8	1/8	1/8	1/8	1/8	1/7½		1/3½	
Sunderland	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Swansea	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Taunton	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Torquay	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3½	
Tunbridge Wells	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/7	
Wakefield	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/5½	
Walsall	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/7	
Warrington	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
West Bromwich	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/7	
Wigan	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/3½	
Windsor	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/7	
Wolverhampton	2/0	2/0	2/0	2/0	2/0	2/0	2/0		1/5½	
Worcester	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	
York	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		1/5½	

(For rates of wages in the Building Trade in Scotland, see page 458.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

MARCH 25.—**Southampton.**— COTTAGES.— Erection of pair of cottages at the Farm Institute, Sparsholt, near Winchester, for the C.C. County Architect, The Castle, Winchester. Deposit £1 1s.

MARCH 27.—**Bradford.**—COLOURING.—For colouring at various schools, for the T.C. City Architect, Town Hall, Bradford.

MARCH 27.—**Carlisle.**—PAINTING.—For painting at Police Office and Sergeant's House, Thornton-road. Stanwix, for the T.C. Mr. H. C. Marks, engineer, 36, Fisher-street, Carlisle.

MARCH 27.—**Derby.**—HOUSES.—Erection of from two to twelve pairs of houses, for the County Borough Council. Mr. C. A. Clews, Borough Surveyor, Borough Surveyor's Office, Babington-lane, Derby. Deposit £1 1s.

MARCH 27.—**Edinburgh.**—GLAZING.—For the cleaning and glazing of windows at various schools for one year, for the E.C. Mr. J. Stewart, Executive Officer, Education Offices, Castle-terrace, Edinburgh.

MARCH 27.—**Edinburgh.**—PAINTING.—For the painter work in connection with the new electric sub-station at Cowgate, for the T.C. Mr. James A. Williamson, Public Works Office, City Chambers, Edinburgh.

MARCH 27.—**Glasgow.**—SALE RINGS.—Erection of two sale rings in the Cattle Market, Hill-street, for the T.C. Office of Public Works, 64, Cochrane-street, Glasgow. Deposit £1 1s.

MARCH 27.—**Huddersfield.**—ALTERATIONS.—Pulling down and rebuilding mill premises, and conversion of the same into offices, for the T.C. Mr. H. Sutcliffe, Borough Architect, 1, Peel-street, Huddersfield.

MARCH 27.—**Lockerley.**—COTTAGES.—For erection of pair of cottages, piggeries, etc., at Carter's Clay, near Lockerley, Romsey, for the Hants C.C. Mr. A. L. Roberts, Architect, The Castle, Winchester. Deposit £1 1s.

MARCH 27.—**Paisley.**—PAINTING.—For painter work at the Public Baths, Storie-street. Master of Works, 13, Gilmour-street, Paisley.

MARCH 27.—**Rhyl.**—BUILDING.— Erection of Rhyl War Memorial Hospital, for the Committee. Mr. F. A. Roberts, Earl Chambers, Mold and Stafford Chambers, Prestatyn. Deposit 2 guineas.

MARCH 28.—**Epsom.**—REPAIRS.—For restoring and repairing two cottages in Longfellow-road, for the R.D.C. Mr. W. F. Wooldridge, Surveyor, Epsom.

MARCH 29.—**Dartford, Kent.**—Repairs to dolphins at Long Reach Pier, Long Reach Hospital, for the Metropolitan Asylums Board. Office of the Board, Embankment, E.C.4. Deposit £1.

MARCH 29.—**Duns.**—BAKERY.—For the erection of a new bakery for the Duns and District Co-Operative Society, Ltd. Mr. Walter Duns, architect, Duns.

MARCH 29.—**Kilmallock.**—COTTAGES.—For erection of 18 cottages, for the Office of Works. District Office of Works, Cork.

MARCH 29.—**London.**—POLISHING FLOORS.—For floor polishing at various London buildings, for H.M. Office of Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1.

MARCH 29.—**Wadebridge.**—ALTERATIONS.—For alterations to Polzeath Lodge, for Capt. W. R. Rendell. Messrs. Symons & Macmillan, solicitors, Wadebridge.

MARCH 30.— **Dorchester.** — HOUSES. — Erection of blocks of semi-detached parlour type and non-parlour type houses on the Victoria Park Site, for the T.C. Mr. S. A. Jackson, architect, Dorchester.

MARCH 30.—**Normanton.**—PAINTING.—For painting outside wood and iron work at Ackton Hospital, for the Normanton and District Joint Isolation Hospital Committee. Mr. J. W. Martin, Clerk, Council Offices, Normanton.

MARCH 31.—**Cambridge.**—HOUSES.—Erection of 30 parlour-type houses in the Borough, for the Borough Council. Mr. J. E. L. Whitehead, Town Clerk, Town Clerk's Office, Guildhall, Cambridge. Deposit £2 2s.

MARCH 31.—**Cardiff.**—FILLING IN AND LEVELLING. — Filling in and levelling of site for colliery sidings in the Neath Valley. Messrs. Corey Brothers & Co., Ltd., Glyncastle Colliery, Resolven.

✱MARCH 31.—**Dover.**—HOUSES.—Erection of 70 houses at the Ropewalk Meadow in the Borough of Dover, for the Borough Council. The tenders must include price for each house complete, including all necessary groundwork, drains, paths, fencing, water supply, etc. Mr. A. T. Miller, architect, 16, Castle-street, Dover. Deposit 1 guinea.

MARCH 31.—**Dunfermline.**—PLASTERING.—For the plaster work of 158 houses, for the T.C. Burgh Engineer, City Chambers, Dunfermline. Deposit £2 2s.

MARCH 31.—**Durham.**—ALTERATIONS.—For alterations at Cornforth-lane Council School, for the C.C. Mr. F. Willey, architect, 34, Old Elvet, Durham.

MARCH 31.—**London.**—GLAZING.—For reglazing the North Court roof, Victoria and Albert Museum, for the Commissioners of H.M. Works. Contracts Branch, H.M. Office of Works, King Charles-street, S.W.1. Deposit £1 1s.

MARCH 31.—**Northumberland.**—BRIDGES.—For reconstruction of the following masonry bridges, for the C.C.:—Causey Park Bridge, near Morpeth; Horton Bridge, near Cramlington; Swallow Bridge, near Chollerton; Woodhorn Bridge, near Newbiggin-by-the-Sea; Crookham Bridge, near Cornhill-on-Tweed; Mill Burn Bridge, near Longhorsley; Elishaw Bridge, near Otterburn. Mr. J. A. Bean, Surveyor, Moot Hall Newcastle-on-Tyne.

MARCH 31.—**Rugby.**—PAINTING.—For painting and repairs to Harborough Magna Hospital, for the Rugby Joint Hospital Board. Mr. T. W. Willard, Surveyor, Rugby.

APRIL 1.—**Ashton-under-Lyne.**—PAINTING.—For painting various buildings at Stamford Park, for the Stamford Park (Joint) Committee. Mr. S. Turner, Secretary, Stamford Park.

APRIL 1.—**Manchester.**—HOUSES.—For the erection of houses on various estates for the T.C. Housing Director, Town Hall Manchester. Deposit £1 1s.

APRIL 1.—**Worcester.**—COTTAGES.—Erection of four pairs of cottages at Kemerton, for the Tewkesbury Rural District Council. Architects, 38, Foregate-street, Worcester.

✱APRIL 3.—**Grantham.**—HOUSES.—Erection and completion of 12 houses on the Dysart-road site—4 parlour type (in pairs), 8 non-parlour type (in pairs), for the Borough Council. Borough Architect, Borough Architect's Office, Guildhall, Grantham.

APRIL 3.—**Sunderland.**—PAINTING.—For the outside painting of the Central Library buildings, for the T.C. Borough Engineer, Town Hall, Sunderland.

APRIL 4.—**Adwick-le-Street.**—OUTBUILDINGS.—Erection of outbuildings only to 8 cottages at Adwick-le-street, for the West Riding C.C. County Land Agent, County Hall, Wakefield.

APRIL 4.—**Hammersmith.**—FLOOR.—For taking up, storing, and re-erecting temporary floor over swimming bath, Lime-grove, Shepherd's Bush, W.12, for one year, for the B.C. Mr. R. H. Clucas, Engineer, Town Hall, Hammersmith, W.6.

APRIL 4.—**Lanchester.**—PUBLIC CONVENIENCE.—For erection of public convenience at Esh Winning, for the R.D.C. Mr. J. R. Lupton, Surveyor, Council Office, Lanchester.

APRIL 4.—**Pool.**—OUTBUILDINGS.—Erection of outbuildings only to 16 cottages on the Harrogate-road, one mile from Pool Station, for the West Riding C.C. County Land Agent, County Hall, Wakefield.

APRIL 4.—**Swansea.**—HOUSES.—For erection of 8 houses at Clydoch, near Swansea, for the Great Western Railway. Engineer's Office, Neath Station, Neath.

✱APRIL 5.—**Harrogate.**—WAR MEMORIAL.—Erection of war memorial containing about 2,000 cub. ft. of Portland stone, to be erected in Prospect Gardens, Harrogate, for the Borough Council of Harrogate. Messrs. J. C. Prestwich & Sons, Bradshawgate Chambers, Leigh, Lancs. Deposit £2 2s.

APRIL 6.—**Glasgow.**—ROOF.—Renewal of the roof of the goods shed at Eglinton-street Goods Station, Glasgow. Committee's Engineer, Buchanan-street Station, Glasgow. Deposit £2 2s.

✱APRIL 6.—**Homerton, E.9.**—EXTENSION.—Extension of the Eastern Fever Hospital, Homerton-grove, Homerton, E.9, of the institution formerly known as the City of London Infirmary, for the Metropolitan Asylums Board. Clerk to the Board, Office of the Board, Embankment, E.C.4. Deposit £3.

APRIL 6.—**Newcastle-on-Tyne.**—SHELTER.—For erection of bowling green shelter in Scotswood Park, Denton-road, for the T.C. City Engineer, Newcastle-upon-Tyne.

APRIL 8.—**Edinburgh.**—VARIOUS WORKS.—For various works in connection with the maintenance of city property, for the T.C. Architect's Department, City Chambers, Edinburgh.

APRIL 8.—**Leeds.**—PAINTING.—For painting and cleaning at the Infectious Diseases Hospital, Seacroft Killingbeck Farm, and the Tuberculosis Sanatorium, Killingbeck, for the T.C. Steward's Office, Seacroft Hospital.

✱APRIL 8.—**Penge.**—HOUSES.—Erection and completion of 22 "A" type and 28 "B 3" type houses at the Chesham Park Housing Site, Anerley, S.E. 20, for the U.D.C. Lieut.-Col. H. W. Longdin, Architect, Town Hall, Penge. Deposit £3 3s.

✱APRIL 11.—**Stourbridge.**—HOUSES.—Erection of A and B type houses on the "Grange Estate Housing Scheme," exactly of the types that have been, or are being erected for the Borough Council of Stourbridge. Mr. Fredk. Woodward, Housing Director, Borough of Stourbridge, Market-street, Stourbridge.

APRIL 11.—**Wandsworth.**—PAINTING.—For internal painting at St. John's Hospital, St. John's Hill, Wandsworth, S.W., for the Board of Guardians. Mr. F. J. Curtis, Clerk, St. John's-hill, Wandsworth, S.W. 18. Deposit £2.

APRIL 19.—**Bournemouth.**—COTTAGES, &C.—Erection of eight pairs of cottages, piggeries, &c., at Muccleshell. Mr. A. L. Roberts, County Architect, The Castle, Winchester. Deposit £1 1s.

NO DATE.—**Anston.**—PAINTING.—For painting and decorating the South Anston Wesleyan Chapel. Mr. A. E. M. Turner, Anston, near Sheffield.

NO DATE.—**Felixstowe.**—PRESBYTERY.—Conversion and erection of a new Presbytery in Gainsborough-road, Felixstowe. Messrs. Jennings and Thompson, Solicitors, Orwell-road, Felixstowe.

NO DATE.—**Glasgow.**—PAINTING.—For painting and plastering 200 houses in north of England. Mr. Alban, 52, St. Enoch-square, Glasgow.

NO DATE.—**Great Haywood.**—HALL.—For erection of memorial hall. Mr. F. Pownall, Hon. Sec., Great Haywood.

NO DATE.—**Leicestershire.**—PAINTING.—For painting and decorating the interiors of the Blaby Isolation Hospital and the Hinckley Isolation Hospital, for the Leicestershire Isolation Hospitals Committee. Mr. J. Baylis, Clerk, 6, St. Martin's, Leicester.

✱NO DATE.—**Leominster.**—RESTORATION.—Restoration of Leominster Church. Tenders invited. Apply Nicholson & Clarke, Architects and Surveyors, Cathedral Chambers, King-street, Hereford.

NO DATE.—**Picton.**—AUCTION MART.—Erection of a new auction mart at Picton Station. Mr. Robinson, Picton House, Picton, Yarm-on-Tees.

NO DATE.—**Seaton Delaval.**—PAINTING.—For painting shop fronts, &c., at Seaton-terrace, for the Co-operative Society. Seaton Delaval Co-operative Society, Seaton Delaval.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers'
Aberdeen	1/10½	1/10½	1/9	1/9	1/9	1/9	1/7	1/5½ to 1/6½	
Airdrie	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Alexandria	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Arbroath	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	1/5½	
Ayr	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/5½ to 1/6½	
Bathgate	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/5½ to 1/6½	
†Blairgowrie	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	—	—	
Bo'ness	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/-	1/8	
Coatbridge	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Dumbarton	2/0	2/0	2/0	2/0	2/0	2/0	1/9	1/7½	
Dumfries	1/10	1/10	1/10	1/10	1/10	1/11½	1/8	1/4½ 1/4½	1/5½
Dundee	2,0	2/0	2/0	2/0	2/0	2/0	1/9	1/7	
Dunfermline	2/0½	2/0½	2/0	2/0	2/0½	2/0½	—	1/7½	
Duns	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0	
Edinburgh	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Falkirk	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Fort William	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/2½	
Galashiels	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	—	—	
Glasgow	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/1	1/7½	
Greenock	2/0½	2/0½	2/0	2/0	2/0½	2/0	1/9	1/4½ to 1/7½	
Hamilton	2/0	2/0	2/0	2/0	2/0	2/0	1/9	1/7½	
Hawick	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/8	1/3½	
Helensburgh	2/0½	2/0½	2/0	2/0½	2/0½	2/0	1/9	1/7½	
‡Inverness	1/11½	—	‡	1/7	1/6½	1/9	1/6	1/0 to 1/3	
Kilmarnock	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/1	1/7	
Kirkcaldy	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/6½	
Kirkwall	1/9	1/9	1/9	1/9	1/9	1/9	—	1/2	
Lanark	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7	
Motherwell	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Perth	2/0	2/0	2/0	2/0	2/0	2/0	1/9	1/6½	
Stirling	2/0	2/0	2/0	2/0	2/0	2/0	1/9	1/7	
Stirlingshire (Eastern District)	2/0	2/0	2/0	2/0	2/0	2/0	1/9	1/7	
Wishaw	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 457. † For housing work only; for other work, Masons 1/8, Painters 1/7, Labourers 1/- to 1/4. ‡ Masons and Carpenters on strike. § Under unemployment relief scheme, 11d.

FURNITURE, MATERIALS, etc.

MARCH 25.—**Waterloo-with-Seaforth.**—MATERIALS.—Supply of materials, stores, &c., to the U.D.C. Mr. F. Spencer Yates, Surveyor, Town Hall, Waterloo.

MARCH 27.—**Cuckfield.**—GRANITE.—Supply of granite and tar to the U.D.C. Mr. A. Croucher, Surveyor, London-lane, Cuckfield.

MARCH 27.—**Dublin.**—STORES.—For the supply of stores for 3, 6 or 9 months for the Midland and Great Western Railway of Ireland. Storekeeper, General Stores Department, Broadstone Station, Dublin. Charge 6d.

MARCH 27.—**Hemsworth.**—ROAD MATERIALS.—For supply of road materials for one year, for the R.D.C. Mr. W. T. Tynam, Surveyor, Hemsworth.

MARCH 27.—**Market Harborough.**—ROAD MATERIALS.—For the supply of road materials for one year, for the U.D.C. Mr. H. G. Coales, Surveyor, Council Offices, Market Harborough.

MARCH 27.—**Normanton.**—MATERIALS.—For road and other materials, for the U.D.C. Surveyor, Council Offices, Normanton.

MARCH 27.—**Port Talbot.**—MATERIALS.—Supply of materials to the T.C. Mr. Moses Thomas, Town Clerk, Port Talbot.

MARCH 27.—**Whittlesey.**—ROAD MATERIALS.—For supply of road materials, for the R.D.C. Mr. J. W. Bowker, Clerk, Whittlesey.

MARCH 28.—**Gt. Crosby.**—MATERIALS.—Supply of road and other materials, to the U.D.C. Mr. J. A. Wright, Surveyor, Council Offices, Coronation-road, Great Crosby.

MARCH 28.—**Hailsham.**—ROAD MATERIALS.—For the supply of road materials, and for tar spraying, for the R.D.C. Mr. G. B. Fairchild, Surveyor, Hellingly.

MARCH 28.—**Malling.**—MATERIALS.—Supply of road materials to the R.D.C. Mr. H. Vickery, Surveyor, West Malling.

MARCH 28.—**Uppingham.**—GRANITE.—Supply of 3,500 tons of granite and 1,000 tons of slag, for the R.D.C. Mr. Fredk. Oakley, Clerk, High-street, Uppingham.

MARCH 29.—**Alnwick.**—ROAD MATERIALS.—For supply of hand-broken whinstone road metal for one year, for the U.D.C. Mr. J. Temple Robson, Surveyor, Council Offices, Alnwick.

MARCH 29.—**Twickenham.**—TAR.—Supply of 30,000 gallons of distilled tar, for the U.D.C. Mr. F. W. Pearce, Surveyor, Twickenham.

MARCH 29.—**Windlesham.**—TAR.—Supply of 19,000 gallons of tar to the U.D.C. Mr. J. E. Weeks, Surveyor, Council Offices. Bagshot.

MARCH 30.—**Cannock.**—ROAD MATERIALS.—For supply of road and other materials for 3 months, for the U.D.C. Mr. R. Blanchard, Engineer, Council Offices, Cannock.

MARCH 31.—**Hampton Wick.**—ROAD MATERIALS.—For supply of road materials, for the U.D.C. Mr. H. Fawssett, Clerk, Council Offices, High-street, Hampton Wick.

MARCH 31.—**London.**—MATERIALS.—For supply of electric cable, field service lamp, and cast-iron pipes, for the High Commissioner for India. Director-General, India Store Department, Belvedere-road, Lambeth, S.E.1.

MARCH 31.—**Stamford.**—TILES.—For the supply of 2,800 sup. yds. of stoneware, aeration and drainage tiles for sewage percolating fillers, for the T.C. Mr. F. R. Ryman, Engineer, Town Hall, Stamford.

APRIL 1.—**Brentford.**—ROAD MATERIAL.—Supply of ballast, cement, &c., to the U.D.C. Mr. J. W. Westlake, Surveyor, Boston-road, Brentford.

APRIL 1.—**Saltcoats.**—GALVANISED BUCKETS.—For the supply of 500 circular refuse galvanised buckets, for the T.C. Burgh Surveyor, Town Hall, Saltcoats.

APRIL 3.—**Durham.**—ROAD MATERIALS.—For supply of road and other materials for one year, for the C.C. Mr. A. E. Brooks, Surveyor, Shire Hall, Durham.

APRIL 3.—**Ramsey.**—ROAD MATERIALS.—For supply of road materials for the U.D.C. Mr. R. F. Serjeant, Clerk, Council Offices, Ramsey, Huntingdonshire.

APRIL 17.—**Tenterden.**—ROAD MATERIALS.—For supply of road and other materials for the T.C. Mr. W. L. C. Turner, Surveyor, Town Hall, Tenterden.

ENGINEERING, IRON AND STEEL.

MARCH 25.—**Manchester.**—VALVES.—Supply of 6 in. discharge valves, manhole doors, ladders, joists, and other ironwork, to the T.C. Secretary, Waterworks Offices, Town Hall, Manchester. Deposit £3 3s.

MARCH 27.—**Croydon.**—STEAM RAISING PLANT.—For water tube boiler, &c., for the T.C. Electrical Engineer, Electricity Works, Factory Lane, Croydon.

MARCH 27.—**Finsbury.**—IRON ROOFING.—For restoring iron roof over jetty and screen at side of berth at Blackfriars, and coating ironwork with bitumastic solution, for the B.C. Borough Surveyor, Finsbury Town Hall, Rosebery-avenue, E.C. 1.

MARCH 27.—**Leeds.**—FOUNDATIONS.—Construction of 280 No. reinforced concrete cylinder sections for foundation units. Mr. G. A. Hart, Sewerage Engineer, 8, Park-square, Leeds. Deposit £2.

MARCH 28.—**Lambeth.**—ELECTRIC LIFT.—For supply and installation of an electric lift and removing existing lift at the Infirmary, Brook-street, Kennington, S.E., for the B.C. Mr. J. A. Goldspink, Clerk, Offices, Brook-street, Kennington-road, S.E.

MARCH 28.—**London.**—STEELWORK.—For supply of steelwork for bridges, for the Great Indian Peninsula Railway Co. Mr. R. H. Walpole, Secretary, 48, Copthall-avenue, E.C.2. Charge £1.

MARCH 29.—**Australia.**—BORING MACHINE.—Supply of one double spindle boring machine, including tools, gears, and accessories, for Newport workshops, for the Victoria Railway Commissioners. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

MARCH 29.—**London.**—FIRE-ESCAPE BRIDGES.—For the erection of steel fire-escape bridges at Tooting Bec Mental Hospital, for the Metropolitan Asylums Board. Mr. T. Cooper, Engineer, Embankment, E.C.4. Deposit £1.

MARCH 29.—**London.**—GALVANISED IRON.—For the supply of galvanised corrugated sheets for the East Indian Railway. Mr. G. E. Lillie, Secretary, Nicholas-lane, E.C.4. Charge £1 1s.

MARCH 29.—**Tooting, S.W.17.**—STEELWORK.—Erecting only steel fire escape bridges and incidental works in connection at Tooting Bec Mental Hospital extension, Church-lane, for the Metropolitan Asylums Board. Office of the Board, Embankment, E.C.4. Deposit £1.

MARCH 29.—**Wortley.**—PIPES.—For supply of cast-iron pipes and other materials at the Ecclesfield and Chapeltown Sewage Disposal Works, for the R.D.C. Mr. F. Thurlby, Engineer, Council Offices, Grenoside, Sheffield. Deposit £2 2s.

MARCH 30.—**Stoke-on-Trent.**—BOILER.—For supply and erection of Lancashire boiler and laundry machinery, for the Stoke-on-Trent and Stoke Rural Joint Hospital Board. Messrs. Martin & Martin and W. H. Ward, Architects, 106, Colmore-row, Birmingham.

APRIL 3.—**Belfast.**—JETTY.—For construction of a reinforced concrete jetty and dolphins at the New Oil Berth, Musgrave Channel Co., for the Harbour Commissioners. Mr. T. T. Gilbert, Engineer, Harbour Office, Belfast.

APRIL 3.—**Cheadle and Gatley.**—MAINS, &C.—For extra high pressure, medium pressure, and low pressure mains and street lighting accessories. Mr. C. H. Wordingham, Engineer, 7, Victoria-street, S.W.1. Deposit £3 3s.

APRIL 3.—**Margate.**—PUMPS.—For supply and erection of two belt-driven vertical ram pumps and two horizontal twin gas engines for sewage pumping, for the T.C. Mr. E. A. Borg, Engineer, 13, Grosvenor-place, Margate.

APRIL 3.—**Shoreham-by-Sea.**—BRIDGE.—Reconstruction of Norfolk Bridge, over River Adur, at Shoreham-by-Sea, for the West Sussex C.C. Messrs. Howard Humphreys & Sons, engineers, 28, Victoria-street, S.W.1. Deposit £10 10s.

APRIL 4.—**London.**—RAILWAY MATERIALS.—For the supply of (1) 10,910 picks, shovels and phowrahs, (2) 118 tons red and white lead, (3) 22,520 lineal yards canvas and bunting, (4) 217 tons spring steel, (5) 22,384 files, (6) 69 tons metals (zinc, aluminium, antimony, brass, copper, lead and nickel), for the Madras and Southern Mahratta Railway Co., Ltd. Secretary, Offices, 25, Buckingham Palace-road, Westminster, S.W.1. Charge £1 1s.

APRIL 4.—**Shoeburyness.**—TOWER SCRUBBER.—For supply and erection of a tower scrubber, for the U.D.C. Engineer, Gasworks, Shoeburyness.

APRIL 5.—**Biddulph.**—BOILER.—For the supply of a vertical cross tube boiler for the Gasworks. Mr. E. A. Plant, Clerk, 3, Chapel-street, Congleton.

APRIL 5.—**London.**—ROLLING STOCK.—For the supply of open and covered goods wagons, wheels and axles and wheel lathes, for the East Indian Railway. Mr. G. E. Lillie, Secretary, Nicholas-lane, E.C.4. Charge £1 1s.

APRIL 6.—**Manchester.**—BOILER.—For the supply of one mild steel vertical crane boiler at the Rochdale-road Gasworks, for the T.C. Mr. G. W. Kaye, Secretary, Gas Department, Town Hall, Manchester.

APRIL 6.—**Manchester.**—ENTRANCE GATES.—For the construction and erection of wrought iron or steel entrance gates at the Bradford-road Gasworks, for the T.C. Mr. G. W. Kaye, Secretary, Gas Department, Town Hall, Manchester.

APRIL 10.—**Leicester.**—PUMPING MACHINERY.—For supply of gas or oil engines and pumps, for Water Dept. Mr. G. T. Edwards, Engineer, Waterworks Offices, Leicester. Deposit £5.

APRIL 10.—**London.**—CONVEYOR.—Supply and erection of (*a*) an ash conveyor of the water immersed, drag-link type: (*b*) an ash hopper. Clerk, County Hall, Spring-gardens, S.W. Deposit £2.

APRIL 10.—**Siam.**—RAILWAY ACCESSORIES.—Supply of accessories for goods rolling stock, to the Siam State Railways. Messrs C. P. Sandberg, 40, Grosvenor-gardens, London, S.W.1. Charge £2.

MAY 7.—**Rochdale.**—SULPHATE OF AMMONIA PLANT.—Supply and erection of sulphate of ammonia plant, for the Gas Committee. Chairman, Gas Committee, Gas Works, Rochdale.

JUNE 19.—**Argentina.**—BRIDGES.—Supply and erection of suspension bridges for local authorities. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

AUGUST 1.—**Siam.**—RAILWAY CARRIAGES.—For the supply of 25 underframes for bogie carriages, for the Department of State Railways. Messrs. C. P. Sandberg, 40, Grosvenor-gardens, S.W.1. Charge £2.

OCTOBER 31.—**New South Wales.**—BRIDGE.—**Construction of the superstructure and substructure of a cantilever bridge across Sydney Harbour from Dawes Point to Milson's Point, for the Government of New South Wales. Agent-General for New South Wales, Australia House, Strand, London, W.C.2.**

ROAD, SANITARY, AND WATER WORKS.

MARCH 27.—**Bradfield.**—ROADS.—For the repair of district roads in various parishes for one year, for the R.D.C. Mr. C. Ford, Surveyor, 15, Lorne-street, Reading.

MARCH 27.—**Edinburgh.**—PAVING.—For mastic rock asphalte paving on concrete bed at Hamilton-place, for the T.C. City Road Surveyor, City Chambers, Edinburgh.

MARCH 27.—**Loughborough.**—SEWERAGE.—Laying of reinforced concrete and pipe sewers, for the T.C. Mr. A. H. Walker, Borough Surveyor, Loughborough. Deposit £3 3s.

MARCH 27.—**Ruislip-Northwood.**—SEWAGE.—For sewage disposal works, &c., for the U.D.C. Messrs. H. Humphreys & Sons, 28, Victoria-street, Westminster. Deposit £3 3s.

MARCH 28.—**Basingstoke.**—STEAM ROLLING.—For steam road rolling, for the R.D.C. Mr. R. Forrester, Surveyor, Chequers-road, Basingstoke.

MARCH 28.—**Huddersfield.**—BOWLING-GREEN.—Construction of bowling-green, for the Moldgreen Conservative Club. Messrs. J. Berry & Sons, architects, 3, Market-place, Huddersfield.

MARCH 29.—**Leicester.**—SEWERS.—For the construction of a pipe sewer in Green-lane, for the T.C. Mr. E. G. Mawbey, Engineer, Town Hall, Leicester. Deposit £2.

MARCH 29.—**Leuchars.**—DRAINAGE WORKS.—For the laying of fireclay pipes and other works for a modern drainage system, for the St. Andrew's District Committee. Messrs. Bruce & Proudfoot, Engineers, Kirkcaldy. Deposit £2 2s.

MARCH 29.—**Orsett.**—WATERWORKS.—For laying 600 yards of cast-iron water mains at Laindon Hills, for the R.D.C. Mr. G. F. Andrassy, engineer, 2, Orsett-road, Grays.

MARCH 30.—**Cannock.**—SEWAGE.—For laying glazed stoneware pipe sewers and other sewerage works at Huntington, for the R.D.C. Mr. H. Whitehead, Engineer, Engineer's Office, Penkridge, near Stafford. Deposit £5.

MARCH 30.—**Castle Ward.**—SEWER.—Laying of about 200 yds. of 6 in. sewer and 120 yds. of 6 in. cast-iron sewer at Dinnington, for the R.D.C. Mr. James Jameson, Sanitary Surveyor, Fernlea, Ponteland.

MARCH 30.—**Stirling.**—WATER MAIN.—Laying about 2 miles of cast-iron pipes, for the T.C. Messrs. Crouch & Hogg, C.E., 31, Lynedoch-street, Glasgow. Deposit £2 2s.

MARCH 30.—**Tavistock.**—SEWERAGE WORKS.—Construction of Lifton sewerage and water supply, for the R.D.C. Mr. A. Kenneth G. Johnstone, Clerk, Town Hall-chambers, Tavistock.

MARCH 31.—**Neath Valley.**—LEVELLING, &C.—Filling-in and levelling of site for colliery sidings in the Neath Valley. Messrs. Cory Bros. & Co., Ltd., Glyncastle Colliery, Resolven.

MARCH 31.—**Swansea.**—SEWAGE.—For laying the following sewers:—(1) At Carmarthen-road, Middle-road, Armine-road and King's Head-road: 806 lin. yds. 12-in. sewer; 1,166 lin. yds. 9-in. sewer; 199 lin. yds. 6-in. sewer. (2) At Cwm-Rhyd-y-Ceirn and Bonymaen: 125 lin. yds. 12-in. sewer; 718 lin. yds. 9-in. sewer; 252 lin. yds. 6-in. sewer, for the T.C. Mr. J. R. Heath, Engineer, Guildhall, Swansea.

APRIL 1.—**Stafford.**—WATERWORKS.—For laying 4,200 yards of cast-iron pipes and castings, for the T.C. Mr. W. Plant, Engineer, Borough Hall, Stafford. Deposit £2 2s.

APRIL 4.—**Failsworth.**—CULVERT.—Construction of about 356 lineal feet of brick and concrete culvert, 8 ft. 6 in. diameter, for the U.D.C. Messrs. Charles J. Lomax & Son, Engineers, 37, Cross-street, Manchester. Deposit £1 1s.

APRIL 5.—**Blyth.**—WELL.—Sinking of a well, 55 to 60 feet deep by 8 ft. 6 in. finished diameter, for the Gas Co. Manager, Gas Works, Blyth.

✱APRIL 10.—**Hendon.**—ROADS.—Fully making up the following private roads within the district: St. George's-road, Templars-avenue (part of), Highcroft gardens, Leeside-crescent (part of), Temple-gardens (part of), and Woodville-gardens, for the Hendon U.D.C. Mr. A. O. Knight, Engineer and Surveyor to the Council, Town Hall, Hendon, N.W.4. Deposit £5.

APRIL 10.—**London.**—WATERWORKS.—For laying 8,400 yards of cast iron water main at Peckham Rye, for the Metropolitan Water Board. Mr. H. E. Stilgoe, Chief Engineer, Offices, New River Head, 173, Rosebery-Avenue, Clerkenwell, E.C.1. Deposit £20.

APRIL 12.—**Birmingham.**—ROADS.—For the construction of roads, &c., on the Corporation Estate, Ward End, for the T.C. Mr. W. H. Humphries, Engineer, The Council House, Birmingham. Deposit £2.

APRIL 15.—**Larne.**—WATERWORKS.—For improving the water supply for the U.D.C. Mr. J. H. H. Swiney, Engineer, Avenue Chambers, Belfast. Charge £1 1s.

NO DATE.—**Althorne.**—REPAIRS.—For repairs to sea wall. Mr. S. Spooner, Althorne, Essex.

NO DATE.—**Ayr.**—TENNIS COURTS.—Laying of four hard Blaes tennis courts and supplying fencing and furnishings. Burgh Surveyor, Town Buildings, Ayr.

Competitions.

(*See Competition News, page* 436.)

Auction Sales, Tenders, etc.

✱MARCH 29.—**Brixton Hill.**—Messrs. Veryard & Yates, F.A.I., will sell without reserve, timber and building materials, at 4, Mill-lane. Auctioneers, 365, Norwood-road, S.E. 27.

✱MARCH 30.—**Penge.**—Messrs. Veryard & Yates, F.A.I., will sell, without reserve, building plant and materials, at 7, Challin-street. Auctioneers, 365, Norwood-road, S.E. 27.

✱APRIL 4.—**Hendon, N.W.**—Messrs. Joseph Hibbard & Sons, in conjunction with Messrs. Powell & Powell, Ltd., will sell at the London Aerodrome, Church-lane, sixth portion surplus and plant, by order of Messrs. Grahame White Co., Ltd., motor accessories, building material, engineering plant, and stores. Auctioneers, Newington Green, Islington, London, N.16.

✱APRIL 5.—**Ilford, Essex.**—Messrs. Kemsley will sell, at the Corn Exchange, Romford, compact freehold building estate, area about 17¼ acres, together with the modern farmhouse and buildings known as White's Farm, and adjacent site of about 3 acres. Auctioneers, Broad-street House, E.C.2.

APRIL 5.—**London, E.C.**—Messrs. Stanley Parkes & Brown will sell at the London Auction Mart, 155, Queen Victoria-street, E.C., the freehold building estate, known as "Hill House," Palmers Green, N., together with property thereon, consisting of dwelling-house, with outbuildings, grounds about 4 acres. Auctioneers, Alderman's Hill, Palmers Green.

✱APRIL 6.—**Clapham Park, S.W.2.**—Messrs. Veryard & Yates, F.A.I., will sell, without reserve, by order of the Liquidator, building plant and materials, office furniture, etc., at 57, Rosebery-road. Auctioneers, 365, Norwood-road, S.E. 27.

✱APRIL 6.—**Clapham Park, S.W.2.**—Messrs. Veryard & Yates, F.A.I., will sell, by order of the Liquidator, at 57, Rosebery-road:—modern freehold residence, 57, Rosebery-road; freehold yard and premises, long leasehold residence, No. 1, Rosebery-road. Auctioneers, 365, Norwood-road, S.E. 27.

APRIL 19.—**Bournemouth.**—Messrs. Rawlence & Squarey will sell at Havergal Hall, Post Office-road, Bournemouth, freehold marine residential property, known as "Wentworth Lodge." Auctioneers, 3A, Dean's-yard, Westminster, S.W.1.

APRIL 19 — **Three Bridges, Sussex.**—Messrs. Knight, Frank & Rutley will sell by auction a freehold woodland building estate, known as Park Wood, Worth, area over 31 acres, at the "Fox Hotel," at 3 p.m. Auctioneers, 20, Hanover-square, W.1.

Public Appointments.

MARCH 28.—**Singapore.**—Architect required, between 30 & 40 years of age, and of sound constitution, by the Municipal Commissioners of the Town of Singapore. Messrs. C. C. Lindsay & Peirce, M.M.Inst.C.E., 180, Hope Street, Glasgow.

✱APRIL 4.—**Swansea.**—Temporary Quantity Surveying Assistant required by Swansea C.B. in the Borough Architect's Department. Mr. Ernest E. Morgan, A.R.I.B.A., Borough Architect, 3, Prospect-place, Swansea.

Timber Exchange at Olomouc.

The Czech paper *Tribuna* announces that a timber exchange has just been established at Olomouc. After the downfall of the Austro-Hungarian monarchy, Czecho-Slovakia seemed to have lost its previous importance as a timber market; but, as a matter of fact, this is by no means the case, and Germany, Italy, France, Holland, Switzerland and Hungary are endeavouring to satisfy at least a part of their timber requirements in Czecho-Slovakia. Last year the stocks of timber for building purposes in Czecho-Slovakia amounted to 5,400,000 cubic metres, about 2,200,000 cubic metres of which came within the jurisdiction of the Olomouc exchange. In addition to this quantity there is also a considerable supply of timber from Slovakia which will find plenty of purchasers at Olomouc. All the forest owners and timber merchants of northern and eastern Moravia are therefore fully aware of the significance of the newly-established exchange, which will soon become a commercial centre of great importance.

Wells Cathedral.

The Bryscom marble columns in the westernmost wall piers of the nave of Wells Cathedral have recently been repolished. There are four detached columns in all, 12 ft. high and 6 in. in diameter, each in a single piece. Two of these, it is said, belong to the original work executed some six hundred years ago, while the remaining two were presented to the Cathedral by the late Canon Meade about sixty years ago. The material for these columns was obtained from the quarries at Draycott, and indicate that its possibilities as a building stone and decorative marble have been appreciated for many generations. Before the columns were repolished there was at the height of about 4 ft. 6 in. from the ground on each of them a small patch where the original polish was retained intact, caused, it is believed, by visitors passing their hands over the material as they walked by. The work of repolishing was carried out by the Bryscom Quarries, Ltd., of Draycott, Somerset.

Port Development in Chile.

A despatch has been received by the Department of Overseas Trade from H.M. Legation at Santiago, Chile, transmitting a copy and translation of the law by which the President of the Republic is authorised to take the necessary steps to put into effect a proposed scheme of port works. Alternative methods of payment are suggested:—(1) That contractors should take over the working of the ports for a specified period, the Government guaranteeing up to 6 per cent. on the money expended; and (2) that loans reaching a total of some seven and a half millions sterling should be negotiated. The despatch states that in all probability the former of these will be preferred. It is understood that certain foreign interests are making every endeavour to secure the contracts. Communications on the subject should be addressed to Ministerio de Obras Publicas, Direccion General de Puertos, Santiago, Chile.

NEW BUILDINGS IN LONDON.

BERMONDSEY.—Considerable progress has now been made with the new L.C.C. Webb-street Mixed Elementary School, occupying a large site having elevations to Webb-street and Tower Bridge-road. The school buildings, which have an approximate overall length of 152 ft. 8 ins., and a depth of about 55 ft., are being constructed in brickwork with reinforced concrete floors. The plans have been prepared by the County Council Architects' Department under the supervision of Mr. W. Brown. There will be seven class-rooms, a cloak-room and hall, and a suite of rooms for the teachers on each of the three floors. Slipper and shower baths with dressing-rooms, &c., will also be provided. The school has been planned to accommodate 896 boys, girls, and infants. The builders are Messrs. L. H. & R. Roberts, of 144, Lower Clapton-road, E.5. The only sub-contracts placed are:—Heating: Messrs. W. Watkin & Son, 181, Queen Victoria-street, E.C.4; electric lighting: Messrs. H. J. Cash & Co., Ltd., Caxton House, S.W.1; steelwork: Messrs. Dorman, Long & Co., Ltd., 4, Central Buildings, S.W.1.

Preliminary work has started on the erection of a large garage for Messrs. Pickfords, Ltd., in Tower Bridge-road. The site has a frontage of about 252 ft. and a depth of 220 ft. The proposed building, of one floor, will have a steel frame fireproofed with concrete. Mr. J. E. Beaumont has prepared the plans at the head offices of Messrs. Pickfords, 205, High Holborn, W.C. The builder is Mr. H. Kent, of Beacon-road, Hither Green, S.E.13. A number of sub-contracts have yet to be settled, but the electric lighting will be carried out by Messrs. John Pearson & Co., Ltd., 84, Kingsway, W.C.2. The steelwork will be supplied by Messrs. Homan & Rodgers, of 17, Gracechurch-street, E.C.3.

✱ WOOLWICH.—Building operations are in progress at the millinery stores of Messrs. Cuff & Co., Ltd., 88-98, Powis-street. One part of the new work comprises an extension to the rear of the shops in Creton-street. The basement and ground floor of the extension will each have a floor-space of approximately 54 ft. by 36 ft. and the first floor 30 ft. by 40 ft. The plans have been prepared by Messrs. Whincop & Parnell. The main contract for this portion of the work has been secured by Messrs. Thomas & Edge, 75, New-road, S.E.18. Brick construction is to be used, and the steelwork will be supplied by Messrs. Homan & Rodgers, 17, Gracechurch-street, E.C.3. The extension will have a flat asphalte roof, contracted for by the Standard Flat Roofing Co., Ltd., Seal Wharf, High-street, Stratford, E.15. The patent stonework is being supplied by Mr. Mason, of Parson's-hill, Woolwich. All casements, &c., will be supplied by the builders. Structural alterations are also being made to the shop occupying No. 98, Powis-street, consisting of the pulling down of the party walls and refitting the interior. This work is being carried out by Messrs. Frederick Sage & Co., Ltd., Gray's Inn-road, W.C. The sub-contract for lighting has been let to Messrs. C. J. Wilkin & Son, 143, High-street, S.E.18.

Extensions and additions are being made to the premises of Messrs. Marsh Bros., drapers, of 26-28, Powis-street. An area of approximately 25 ft. by 35 ft. is being added at the rear of the premises, on which a single-floor brick building will be erected with a wood floor and lead roof. The plans have been prepared by Mr. Champer. The building work and demolition of a part of the rear of existing premises is being carried out by Mr. J. Stevens, 31, New-road, S.E.18. The steelwork is by Messrs. Redpath, Brown & Co., Ltd., of 3, Laurence Pountney-hill, E.C.4.

Messrs. Douglass, Halse & Co., Ltd., 5, Chapel-street, are reconstructing No. 24, Green's-end, and when completed they will use the first floor as their new offices. The architects are Messrs. Eley & Allen, of 83, Powis-street, whose plans provide for brick construction, structural alterations and a new shop front to the ground floor.

✱ WEST CENTRAL. — Considerable alterations and additions are being made to the tailoring department of the Civil Service Co-Operative Society's Haymarket Stores. The structural alterations include a certain amount of steelwork, fireproofed with brickwork, also plaster and internal decorating and shop-fitting. The architect is Mr. G. Thrale Jell, A.R.I.B.A., of 52, Shaftesbury-avenue, W.1. The main contract has been let to Messrs. Sabey & Son, 3, St. Peter's-street, Islington, N.1. The steelwork is by Messrs. Ransomes Powers-Deane, Ltd., 45, Tower-hill, E.1.

The premises occupying Nos. 51 and 52, Haymarket, are being demolished, and it is understood that the Maison Nichol, at No. 50, will also be removed later, thus clearing the site back to St. James'-market, leaving only the premises of Messrs. J. Styles & Son, builders, on the corner of Market-street and St. James'-market. When the demolition is completed it is proposed to erect a modern six-floor office building on this large site. The existing passage way between Nos. 51 and 52, Haymarket, will remain and will be widened to form a new road through into Market-street. The architects are Messrs. Wagstaff & Son, 2, Highbury-place, N.5. The demolition work is being carried out by Mr. Henry J. Greenham, of Rosebank Wharf, Fulham, S.W. The main contract for the new building has been let to Messrs. Sabey & Son, of 3, St. Peter's-street, Islington, N. It is understood that the leases are running out of a lot of the old property in this vicinity and that a great amount of rebuilding may be expected within the next twelve months or so.

A block of new buildings is to be erected shortly on the site at present occupied by Nos. 11 and 12, Marble Arch and No. 13, Great Cumberland-mews. The sole agents are Messrs. Samuel Walrock & Co., of 16, Brook-street, Hanover-square, W.1.

Preliminary work has commenced on a large extension to the Coventry-street "Corner House," of Messrs. J. Lyons & Co., Ltd. The new building, comprising six floors, exclusive of basement and sub-basement, will have a frontage of about 125 ft. and a depth of 130 ft. Each floor will have an approximate area of 1,460 sq. ft. The steel frame is being supplied by Messrs. Dorman, Long & Co., Ltd., of 4, Central Buildings, S.W.1. The architect is Mr. Wills, of 62, Oxford-street, W. The reinforced concrete floors are by Messrs. F. Bradford & Co., of 23, Coopersale-road, E.9. Messrs. Lyons' own staff is carrying out all the building work. It is understood that a number of sub-contracts have yet to be settled.

It is understood that the premises, owned by the Crown, occupying Nos. 34-36, Regent-street, are shortly to be demolished, but no further information as to the new buildings to replace the existing ones is yet available. Mr. Forrester Woods, of Victoria-street, S.W., may have further details concerning this scheme shortly.

Messrs. Henry Heath's premises at No. 107, Oxford-street, W., are being reconstructed, and a new shop front is being fitted by Messrs. E. Pollard & Co., Ltd., of Aylesbury-street, Clerkenwell, E.C.1.

CHARLTON.—Work is now progressing on a large extension to the L.C.C. Tramways Depôt in Woolwich-road, involving the addition of 1½ acres of engineering, car-building and repairing shops, painting sheds, &c. The buildings have a skeleton framework of steel, which is to be fireproofed with brick and concrete, and the floors are to be of reinforced concrete. The main contract has been secured by Messrs. P. & W. Anderson, Ltd., of 199, Piccadilly, W.1.

STOKE NEWINGTON.—A new factory is now being erected for Mr. H. Yager, cabinet manufacturer, of 28, Charlotte-street, E.C.2. The building is of two floors, has an area of about 90 ft. by 35 ft., and is being built on a vacant site at the rear of Nos. 217-219, High-street, adjoining the Abney Park Cemetery. The architect is Mr. Hood, Moorgate-street, E.C.4. The builder is Mr. Sterman, of Avenue-road, Clapton, E. Brick construction will be used, and the steelwork is by the Aston Construction Co., Ltd., of Eagle Wharf-road, Hoxton, N.1.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue several prices have been revised.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.	£ s. d.
Best Stocks	4 13 0

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Fletton, at King's Cross	3 5 0	Best Blue Pressed Staffs.	10 11 6
Do. grooved for plaster	3 7 0	Do. Bullnose	11 1 6
Do. Bullnose	4 0 0	Blue Wire Cuts	8 11 6
Best Stourbridge Fire bricks:— 2½ in.	11 3 0	3 in.	13 2 6
GLAZED BRICKS— Best White, Ivory, and Salt Glazed Stretchers	24 0 0	D'ble Str'tch'rs D'ble Headers One Side and two Ends	32 10 0 29 10 0 29 10 0
Headers	23 10 0	Two Sides and one End	33 10 0
Quoins, Bullnose and 4½in. Flats	30 10 0	Splays and Squints	32 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.		
Thames Ballast	14 0	per yard,	delivered 2 miles radius Paddington.
Pit Sand	17 0	" "	
Thames Sand	19 0	" "	
Best Washed Sand	19 0	" "	
¾ in. Shingle for Ferro-Concrete	19 0	" "	
¼ in. " "	20 0	" "	

Per ton delivered in London area in full van loads.

	£ s. d.		£ s. d.
Best Portland Cement. British Standard Specification Test	3 10 6		3 16 0

63/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	10 0

NOTE.—The sacks are charged at 1s. 9d. each and credited at 1s. 6d. each if returned in good condition within three months, carriage paid.

Best Ground Blue Lias Lime 2 8 0 at rly. depot.
Grey Stone Lime 61s. 0d. per ton delivered in City and Central districts.
Stourbridge Fireclay in s'cks 37s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	3 5½
Do. do. delivered on road wagons at Nine Elms Depot	3 6½
PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L.& S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 11½
Do. do. delivered on road wagons at above stations, per ft. cube	5 0½
White basebed, 3d. per ft. cube extra.	
NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London.	s. d.
4 in. sawn two sides landings to sizes (under 30 ft. super.) Per Ft. Super	6 1½
5 in. rubbed two sides, ditto "	6 7½
3 in. sawn two sides slabs (random sizes) "	2 7
2 in. to 2½ in. sawn one side slabs (random sizes) "	1 8
1½ in. to 2 in. ditto, ditto "	1 5
HARD YORK— Delivered at any Goods Station London.	
Scappled random blocks Per Ft. Cube	7 6
4 in. sawn two sides landing to sizes (under 40ft. super.) Per Ft. Super	6 6
6 in. rubbed two sides ditto "	7 2
4 in. sawn two sides slabs (random sizes) "	3 4
3 in. ditto, ditto "	2 10
2 in. self-faced random flags Per Yard Super	9 9

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	36 0	per standard
4 × 9	35 0	"
4 × 8	30 0	"
4 × 7	30 0	"
3 × 8	30 0	"
3 × 7	25 0	"
2½ × 7	25 0	"
3 × 6	25 0	"
3 × 11	34 0	"
2 × 11	32 0	"
3 × 9	30 0	"
2½ × 9	30 0	"
3 × 4½	20 10	"
3 × 4	20 10	"

PLANED BOARDS.

1 × 11	42 10	"
1 × 9	37 10	"

PLAIN EDGE FLOORING.

Inches		
¾	20/-	per square
¾	22/6	"
1	25/-	"
1¼	32/6	"
1½	44/-	"

TONGUED AND GROOVED FLOORING.

Inches		
1	25/-	per square
1¼	32/6	"
1½	44/-	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	17/6	per square
¾	22/6	"
1	25/-	"

Inches	BATTENS.	s. d.	
¾ × 2		3 0	per 100 ft.

SAWN LATHS.

Per bundle	0 4 0

Dry Wainscot Oak, per ft. super, as inch	0 2 6	to	0 3 0		
¼ in. do. do.	0 1 10½	to	0 2 6		
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 2 3	to	0 3 0		
Cuba Mahogany	0 3 6	to	0 4 0		
Teak (Rangoon, Moulmein or Java), per load	52 10 0	to	55 0 0		
American Whitewood planks, per ft. cube	0 16 0	to	0 18 0		
Best Scotch Glue, per cwt	7 2 0	to	—		
Liquid Glue, per cwt	4 18 0	to	6 0 0		

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	46 10 9
" " "	22 by 12	42 5 0
First quality "	22 by 11	39 0 0
" "	20 by 12	37 2 6
Best Blue Portmadoc	20 by 10	31 15 0
" "	18 by 10	26 5 0
First quality "	18 by 9	23 2 6
" "	16 by 10	22 0 0
" "	16 by 8	17 2 6

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	7 0 0
Ditto hand-made ditto	7 15 0
Ornamental ditto	8 0 0
Hip and valley tiles (per dozen)	0 12 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	14 10 0
Plain Compound Girders	16 10 0
" Stanchions	18 0 0
" In Roof Work	22 0 0

WROUGHT IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £15 net value delivered direct from Works. 5 per cent. less above gross discounts, carriage forward if sent from London Stocks.)

Tubes. (all sizes).	Fittings. Up to 2".	Fittings. Over 2".	Flanges. Up to 2".	Flanges. Over 2"
Gas	47½%	45 %	50 %	60 %	65 %
Water	41½%	40 %	45 %	55 %	60 %
Steam	35 %	35 %	40 %	50 %	55 %
Galv'd—					
Gas	32½%	37½%	42½%	52½%	57½%
Water	25 %	32½%	37½%	47½%	52½%
Steam	17½%	27½%	32½%	42½%	47½%

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts plain	3 10½	3 4	4 0
2½ in. "	4 8	3 8	5 0
3 in. "	5 6½	4 0	6 0
3½ in. "	6 1	5 0	7 0
4 in. "	6 10½	5 8	8 0

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	2 6½	2 0	2 8
2½ in. " "	2 9½	2 4	3 2½
3 in. " "	3 4½	2 10	4 3
3½ in. " "	4 0	3 4	5 0
4 in. " "	4 6	4 1½	6 1

L.C.C. DRAIN PIPES.—9 ft. lengths. London Prices per yd.: 4 in., 5/9 .. 5 in., 7/2 .. 6 in., 8/9.

IRON—	Per ton in London. £ s. d.		£ s. d.
Common Bars	13 10 0	to	14 10 0
Staffordshire Crown Bars good merchant quality	14 10 0	..	15 10 0
Mild Steel Bars	17 10 0	..	18 10 0
Steel Bars. Ferro-Concrete quality, basis price	12 10 0	..	13 10 0
Hoop Iron, basis price	18 0 0	..	19 0 0
" Galvanised	31 0 0	..	33 0 0
Soft Steel Sheets, Black— Ordinary sizes to 20 g.	16 0 0	..	17 0 0
" " " 24 g.	17 0 0	..	18 0 0
" " " 26 g.	18 10 0	..	20 10 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality— Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g.	21 0 0	..	22 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	22 0 0	..	23 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	24 0 0	..	26 0 0
Flat and Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 9ft. 20 g.	21 10 0	..	22 10 0
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	22 0 0	..	23 0 0
Ordinary sizes, 6ft. to ft. 26 g.	24 0 0	..	25 0 0

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Sheets Galvanised Flat, Best quality— Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	27 0 0	..	28 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	28 0 0	..	29 0 0
Best Soft Steel Sheets, 26 g.	30 0 0	..	31 0 0
Cut Nails, 3in. to 6in. (under 3in. usual trade extras.)	25 0 0	..	26 0 0

METAL WINDOWS—Standard sizes suitable for complete houses including all fittings, painting two coats, and delivery to job, average price about 1/7 to 1/10 per foot super.

LEAD, &c.

	Delivered in London. £ s. d.		
LEAD—Sheet, English, 4 lb. and up	33 0 0	..	—
Pipe in coils	33 10 0	..	—
Soil Pipe	34 0 0	..	—
Compo pipe	37 0 0	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills per ton	19 0 0	..	—
Do., ex country, carriage forward per ton	20 0 0	—	—
COPPER— Strong Sheet per lb.	0 2 3	—	—
Thin " "	0 2 4	..	—
Copper nails "	0 2 3	..	—
Copper wire "	0 2 4	..	—
TIN—English Ingots "	0 1 9	..	—
SOLDER—Plumbers' "	0 0 10	..	—
Tinmen's "	0 1 0	..	—
Blowpipe "	0 1 3	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

Per Ft.		Per Ft.	
15 oz. fourths	4½d.	32 oz. fourths	9½d.
" thirds	5½d.	" thirds	11d.
21 " fourths	6½d.	Obscured Sheet, 15 oz.	7d.
" thirds	6½d.	21 "	9d.
26 " fourths	7½d.	Fluted and Enamelled 15 "	11d
" thirds	8½d.	Enamelled 21 "	1/2

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
Rolled plate	4½d.
Rough rolled	6d.
Rough rolled	6½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7d.
Ditto, tinted	9½d.
Rolled Sheet	6d.
White Rolled Cathedral	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil	in pipes per gallon	0 3 10
" " "	in barrels "	0 3 11
" " "	in drums "	0 4 0
Boiled " "	in barrels "	0 4 3
" "	in drums "	0 4 5
Turpentine	in barrels "	0 6 1
"	in drums (10 gall.) "	0 6 4
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		54 5 0

GENUINE WHITE LEAD PAINT—
"Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered 76 0 0

Red Lead, Dry (packages extra)	per ton	37 0 0
Best Linseed Oil Putty	per cwt.	0 17 0
Filocol	per cwt.	0 15 6
Size. X D Quality	fkn.	0 4 6

VARNISHES, &c.

		Per gallon. £ s. d.
Oak Varnish	Outside	0 15 0
Fine ditto	ditto	0 17 2
Fine Copal	ditto	1 1 6
Pale Copal	ditto	1 2 6
Pale Copal Carriage	ditto	1 4 6
Best ditto	ditto	1 14 6
Floor Varnish	Inside	0 19 0
Fine Pale Paper	ditto	0 18 0
Fine Copal Cabinet	ditto	1 2 6
Fine Copal flatting	ditto	1 0 6
Hard drying Oak	ditto	0 18 0
Fine Hard drying Oak	ditto	0 19 0
Fine Copal Varnish	ditto	1 0 6
Pale ditto	ditto	1 2 6
Best ditto	ditto	1 14 6
Best Japan Gold Size		0 12 6
Best Black Japan		0 15 0
Oak and Mahogany Stain (water)		0 17 6
Brunswick Black		0 11 6
Berlin Black		0 16 6
Knotting (patent)		1 16 0
French and Brush Polish		1 8 0
Liquid Dryers in Terebine		0 13 6
Cuirass Black Enamel		0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	15	6
Add if in clay	" "	1	9
Add for every additional depth of 6 ft.	" "	1	3
Planking and strutting to trenches	per foot super	0	7
Do. to sides of excavation, including shoring	" "	1	2

CONCRETOR.

Portland cement concrete in foundation 1 to 6 ..	per yard cube	43	0
Add if in underpinning in short lengths	" "	9	6
Add if in floors 6 in. thick	" "	3	10
Add if in beams	" "	4	9
Add if aggregate 1 : 2: 4	" "	12	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	4	0

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	39	15	0
Add if in stocks	"	8	10	0
Add if in Staffordshire blues	"	25	10	0
Add if in Portland cement and sand	"	3	10	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat strucks or weathered joint.....	" "	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	" "	0	0	11½
Axed in stocks	" "	0	1	11
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	8

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	5
Setting ordinary register grates and stoves	each	1	1	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	5	5	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	7	6
Three-quarter-inch vertical damp course	" "	11	8
½ inch on flats in two thicknesses.....	" "	8	6
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	4

MASON.

York stone templates fixed	per foot cube	16	3
York stone sills fixed	" "	28	6
Bath stone and all labour fixed	" "	15	0
Portland stone fixed	" "	23	0

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails....	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

Fir framed in plates .....per foot cube		6	9
Do. joists	" "	7	9
Do. roofs, floors and partitions	" "	7	9
Do. trusses	" "	10	0

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	42/–	48/–	56/–	85/–

		s.	d.
Flat centering for concrete floor, including struts or hangers .. "		63	0
Do. to beams .....per ft. sup.....		1	6
Centres for arches ..... "		2	0
Gutter boards and bearers ..... "		1	6

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		49/–	58/–	67/–
Do. tongued and grooved	"		54/–	65/–	72/–
Do. matchings	"	45/–	55/–		
Moulded skirting, including backings and grounds .....per ft. sup.		1/8	2/1	2/3	2/9

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	11
Two Do. Do. Do.	" "	2	4½
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights ; average size.....	" "	4	9

DOORS.

		1¼"	1½"	2"
Two-panel square framed .....per ft. sup.		2/6	2/9	2/11
Four-panel Do.	"	2/10	3/2	3/5
Two-panel moulded both sides	"	3/2	3/5	3/8
Four-panel Do. Do.	"	3/6	3/9	4/–

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated ..... per foot cube		15	6

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/11	2/–	2/3
Deal shelves and bearers	"	1/8	1/10	2/1
Add if cross tongued	"	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/3	2/6	2/11	—	—
Deal strings wrot on both sides and framed	1/9	2/1	2/3	2/9	—

		s.	d.
Housings for steps and risers	each	0	11½
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail ; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4½
Sash fasteners .....11½d.		Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and making good	19/–
Casement stays.....	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	19	0
Plain compound girders	"	22	0
Do. stanchions	"	25	0
In roof work	"	30	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints ..	ft. run	1/11	2/4½	3/7	4/–
Ogee Do. Do. ..	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/–
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	56	0
Do. Do. in flats	"	52	0
Extra labour and solder in coated cesspools	each	7	4
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	10
Copper nailing	" "	0	7

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	10d.	1/6	1/9	3/1	3/10	
Do. service	"	1/5	1/11	2/3	3/6		
Do. soil	"						6/2
Bends in lead pipe	each					3/3	8/2
Soldered stop ends	"	1/2	1/8	2/1	2/10	3/6	
Red lead joints	"	11d.	1/–	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/10	3/6	4/–	4/11	6/6	9/9
Lead traps and cleaning screws	"				14/7	19/6	
Bib cocks and joints ..	"	6/4	9/7	15/4	41/–		
Stop cocks and joints	"	15/4	17/2	25/8	64/–		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	2
Do. Do. Sirapite	" "	3	7
Do. Do. Keen's	" "	4	9
Add sawn lathing	" "	1	9
Add metal lathing	" "	3	0
Portland cement screed	" "	2	9
Do. plain face	" "	4	6
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	7

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	1
26 oz. Do.	" "	1	4
Obscured sheet	" "	1	8
⅛ in. rolled plate	" "	1	0
¼ in. rough rolled or cast plate	" "	1	1
¼ in. wired cast plate	" "	1	7

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	3
Knotting and priming	" "		8
Plain painting 1 coat	" "	1	0
Do. 2 coats	" "	1	9
Do. 3 coats	" "	2	6
Do. 4 coats	" "	3	3
Graining	" "	2	8
Varnishing twice	" "	2	0
Sizing	" "	0	4
Flatting	" "	0	8
Enamel	" "	1	6
Wax polishing	per foot sup.	0	10½
French polishing	" "	1	3
Preparing for and hanging paper	per piece 2/– to 4/–		

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

PROPOSED NEW BUILDINGS & OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

BANBURY.—Plans passed by T.C.: Shop front, 8, High-street, for Messrs. Freeman, Hardy & Willis; garage, North Bar-place, for Salmon & Sons.

BARNES.—Plans passed by U.D.C.: House, Connaught-avenue, by Mr. Reg. B. Rowell; additions, Orchard House, Grange-road, by Messrs. A. & C. Cripps; store, adjoining 2, Carlton-road, by Mr. R. B. Rowell; two houses, Westmoreland-road, by Mr. A. Harvey; rebuilding "Jolly Gardeners," Lower Richmond-road, by Messrs. Young & Bell; stables, Grove-road, by Mr. G. W. Smith; house, Fife-road, by Mr. G. W. Smith; petroleum filling station, "Derby Lodge," Upper Richmond-road, by Messrs. Cory Bros., Ltd.; alterations, 248, Upper Richmond-road, by Mr. T. Jones; twelve houses, Temple Sheen-road, by Messrs. Couch & Coupland.

BARNSLEY.—Plans passed by T.C.: Barnsley and District Grocers' Co., Ltd., garage, Foundry-street; R. B. England, additions to house, 102, Sackville-street; Barnsley Permanent Building Society, addition to offices, Regent-street; Beckett Bros., two washhouses, Shaw-lane; C. Smith, house, Granville-street and Salisbury-street; H. Hibbert, shed, off Grace-street; J. S. Hodgson, wooden garage, Hunningley-lane, Stairfoot. The T.C. has decided to erect market buildings at a cost of £11,000. Plans have been approved for the erection of two semi-detached villas in Granville-street and Salisbury-street. The architect is Mr. William Storrs, Straight-lane, Goldthorpe, near Rotherham. Plans have been approved for the additions to the offices of the Barnsley Permanent Building Society, Regent-street. The architect is Mr. Clegg, Regent-street, Barnsley. Plans have been approved for the erection of a large store and warehouse, Grace-street, Barnsley, for Mr. H. Hibbert. The architect is Mr. P. A. Hinchliffe, F.R.I.B.A., 14, Regent-street, Barnsley. Plans have been approved for large additions and alterations to the "Electric" cinema theatre for Mr. William Morris, of Sheffield. The architect is Mr. P. A. Hinchliffe, F.R.I.B.A., 14, Regent-street, Barnsley.

BLACKBURN.—Plans passed by T.C.: Bank, Banktop, by the London Joint City and Midland Bank; scullery, Snape-street, by Mr. W. Cowburn; alterations to "Haymarket" Hotel, Cort-street, by Messrs. Matthew Brown & Co., Ltd.; four houses, Livingstone-road, by Mr. H. Aspden; bank, King William-street and Lord-street, by the National Provincial and Union Bank of England, Ltd.; addition to bakery, Wall-street, by the Blackburn Amalgamated Co-operative Society, Ltd.; loose box, Bullion Moss, Whinney-lane, by Mr. A. Butterfield.

BURNLEY.—Plans passed by T.C.: Wash-house, 4, Watt-street, by Mr. Spencer; bottle store at Glass Works, Celia-street, by Messrs. E. Bishop & Sons; wood building as school extension, Thursby-road Congregational Chapel, by the Trustees; shop, 13, St. Matthew-street, by Mr. F. Slater; garage, Arkwright-street, by Mr. T. Kelshaw; bathroom, 219, Padiham-road, by Mr. J. R. Smith; alterations to the "Bull" Hotel, Manchester-road and St. James'-street, by Messrs. J. Grimshaw, Ltd.; alterations at rear of Enon Chapel, Red Lion-street, by the Trustees; two bungalows in Marsden-road, by Mr. W. Taylor.

CHAPEL-EN-LE-FRITH.—Plans passed by R.D.C.: Bungalow, Sandiway Head, Chapel-en-le-Frith, E. A. Pilkington, owner; sanitary improvements, at the Bugsworth Council Schools; bungalow, near Shatton Bridge, Bamford, R. Wilson, owner; joiner's shop, Shallcross Mill, Whaley Bridge, C. Hutchinson, owner; house, Manchester-road, Chapel-en-le-Frith, J. Potter, owner; shop, Market-street and Rowton Grange-road, Chapel-en-le-Frith, Messrs. Hunters, Ltd., owners; garage, Lower-lane, Chinley, Mr. Cresswell, owner.

CHATHAM.—Plans passed by T.C.: Seven houses, Ewart-road, for Mr. H. A. Phillips; bungalow, Maidstone-road, for Mr. and Mrs. E. Hollands; shed and workshop, 262, Luton-road, for Mr. J. L. Trueman; store, 33, Railway-street, for Saccone & Speed, Ltd.; three houses, Maidstone-road, for Mr. W. A. Watson.

CHESHIRE.—The C.C. has secured an estate at Gawsworth for small holdings. The schemes embrace four sets of farm buildings and seven smallholders' dwellings.

CHESTER.—The justices have passed plans for alterations by the Chester Northgate Brewery Co. at the "Liverpool Arms."

COLERAINE.—The authorities of the Presbyterian Church have decided to proceed with the scheme for alterations to the church at an estimated cost of £6,000. A special building committee has been appointed.

DORCHESTER.—Plans passed by T.C.: Shelter, East Parade, London-road, for Messrs. Lott & Waine; alterations, 27, Mountain Ash-road, for Mr. A. Pitfield.

DROITWICH.—Plan passed by T.C.: Alterations, 30, Ombersley-street, for the Worcester Co-operative Society.

DUNDEE.—Boyd-lane, Broughty Ferry, garage for Charles Phillip; Claverhouse-road, w.c. for Messrs. Boase & Co., Ltd.; Clepington-road, shed for Shell-Mex, Ltd.; Mains Loan, garage for John F. Buglass; Rossbank-street, cottage and extension to cinema for Arthur E. Binnall; Strathmartine-road, garage for Simon G. Fraser.

ERPINGHAM.—Plans passed by R.D.C.: Shop at Sea View, East Runton, for Mr. R. Hall; villa at West Runton, for Mr. W. F. Payne; villa at West Runton, for Mrs. A. M. Ritchie.

FLEETWOOD.—A building plan has been approved for four dwelling-houses (two shops), in Shakespeare-road and Dronsfield-road, for Mr. J. Walmsley.

FOLKESTONE.—Plan passed by T.C.: By G. W. Chitty & Co., per Mr. E. M. Cox, architect, alterations and additions to bakehouse, 122, Foord-road; by Pickfords, Ltd., per Mr. S. Binfield, builder, garage for lorry at 139, Dover-road; and Mr. E. C. Hann, per Mr. H. Videan, architect, new road and building estate forming extension of Burrow-road.

GLASGOW.—Linings granted by the Dean of Guild Court: The Riverside Milling Co., Ltd., 67, Hope-street, to make alterations and additions to premises at Springfield-street and Boyd-terrace; Albert Edward Pickard, 101, Trongate, to erect a verandah at picture house in Dechmont-street, at Dalmarnock-street, Parkhead; Arthur F. Christie, manufacturer, 38, Kilmailing-road, Cathcart, to make alterations and additions to dwelling-house at that address; J. Sears & Co., Ltd., boot and shoe manufacturers, Ardnitt-road, Northampton, to make alterations to shop premises at 104, Argyle-street; Alexander Fergusson & Co., Ltd., Glasgow Lead and Colour Works, Ruchill-street, Maryhill, to make alterations to premises at 48, M'Alpine-street; The Glasgow Railway Engineering Co., Ltd., 87, Helen-street, Govan, to erect new roof over railway siding and new roofs over smithy, forge and wheel shop at premises on east side of Helen-street; The North British Bottle Manufacturing Co., Ltd., 515, Old Shettleston-road, Shettleston, to erect a pavilion at Springfield-road, Shettleston; Alexander Cochrane, Ltd., wholesale grocers, 30, Stevenson-street, Calton, to make alterations to premises at 92, Cornwall-street; Wallace & Weir, Ltd., 42, Argyle-street, to make alterations and additions to warehouse, at 9, Virginia-street; Panther, Ltd., 121, Saracen-street, Possilpark, to make alterations to shop premises at 93, Canning-street; James M'Alley & Co., manufacturing chemists, 193, Broomloan-road, Govan, to build in boiling pan and erect chimney stalk at that address; Corporation Parks Department, to erect a blacksmith's shop in Kelvingrove Park; Bayne & Duckett, Ltd., 58, Brunswick-street, to make alterations to shop premises at 183, Argyle-street; Park-head Church of the Nazarene, 14, Burgher-street, to make alterations and additions to church; John Hately, garage, bowling-green, Whiteinch.

GOLDTHORPE.—Plans have been approved for the erection of a billiard hall. The architect is Mr. P. A. Hinchliffe, F.R.I.B.A., 14, Regent-street, Barnsley.

HUDDERSFIELD.—The licence of the "Horse Shoe," Birkby, has been renewed subject to structural alterations being carried out.

HULL.—Mr. T. R. Ferens, who has presented to Hull a boating lake, a site for an art gallery, and money to defray the cost of building the gallery, has written to the Corporation stating that he will buy a site for the new Technical College and present it to the city. The site covers 19 acres, and the cost approximates to £10,000.

IPSWICH.—The T.C. has approved a scheme for baths in St. Matthews-street, and will apply to the Ministry of Health for sanction to borrow £27,770 for the purpose.

JARROW.—Plans passed: Ten bungalows, Robert's-terrace, for Mr. Craig; club premises, Grange-road, for Jarrow branch of the British Legion.

KEIGHLEY.—It is proposed that application be made to the Ministry of Transport for sanction to borrow £40,000 for the purpose of entirely reconstructing about 2¼ miles of single tramway track.

KILDARE.—A new water tower is to be erected at Kildare waterworks at a cost of £4,200.

LONDON (CITY).—A Select Committee of the House of Commons has passed the Bill of the City of London Corporation for power to spend £2,000,000 on an extension and improvement of Spitalfields Market, including street widenings. The alterations will be effected within five years.

LONDON (DEPTFORD).—Drainage plans passed by B.C.: At 10, Snead-street, for Mr. J. Morton; at 315 and 317, Queen's-road, for Mr. G. Wallis, Tunbridge.

LONDON (FINCHLEY).—Extensions at St. Michael's Church, Golders Green, will cost £3,000.

LONDON (HACKNEY).—Plans passed by B.C.: Alterations, 21, Amherst Park, for Messrs. A. Osment & Sons; sanitary accommodation at factory, 3, Chalgrove-road, for Messrs. Tooley & Foster.

LONDON (ST. MARYLEBONE).—It is proposed that 22 & 23, Gloucester-place and 20, Dorset-street shall be acquired by the B.C. and altered to be used for a temporary free library.

LONGTON.—A new fire station is to be erected for the town, the Ministry of Health having sanctioned the loan of £4,500 for the purpose.

MAIDENHEAD.—Plans passed by T.C.: Conversion of garage and stables into a house at "Kindowie," Boyndon-road, for Mr. J. Baker; alterations, Cuba Villa, Bath-road, for Mr. Ridgwell Cullum; dairy premises, Brock-lane, for Miss Budgen; house, Keble-road, for Mr. W. Badcock; and store sheds, Ray Mill-road, for Mr. F. W. Nash and Mr. F. W Morgan, respectively.

MANCHESTER.—At the weekly meeting of the Improvements and Buildings Committee some 80 plans were passed. Of these 22 referred to garages, four to houses which will be privately built, several to shops of considerable size, one to a big warehouse and one to a new chocolate factory.

NELSON.—Plans passed by T.C.: Bungalow, Norwood-avenue, for Mr. A. Middlebrook; alterations, 97, Manchester-road, for Hargreaves, Wild & Co.; addition, 39, Lee-road, for Earnshaw & Crabtree; tennis pavilion, Clough Head, for Mr. W. E. Slading; store, Peter-street, for the Talbot Engineering Co.; cinema, Leeds-road, for the Regent Picturedrome Co., Ltd.

OSSETT.—Plans passed by T.C.: Garage, Sunny-bank-street, for Mr. W. Townend, jun.

ROTHBURY.—Plan passed: Bungalow, Waterleap, for Mr. Duffy, Wallsend.

SMETHWICK.—The T.C. is recommended to apply for sanction to borrow £180,000 in connection with the reorganisation of the gasworks.

STAINFORTH.—Plans have been approved for the erection of a new cinema at Stainforth, near Doncaster. The architects are Messrs. Hopkinson & Co., Bridge-street, Worksop. Plans have been approved for the erection of four lock-up shops, Church-road, Stainforth, near Doncaster. The architect is Mr. P. A. Hinchliffe, of 14, Regent-street, Barnsley. Plans have been approved for the erection of ten lock-up shops in Church-road, Stainforth, near Doncaster. The architects are Messrs. Hopkinson & Co., Bridge-street, Worksop.

STAIRFOOT.—Plans have been approved for the erection of a large public garage in Hunningley-road, Stairfoot, near Barnsley. The architect is Mr. J. S. Hodgson, of Stairfoot. Plans have been approved for the erection of a large store and warehouse at Ardsley-hill. The architects are Messrs. Crawshaw & Wilkinson, Regent-street, Barnsley.

STANDISH.—Plan passed: Bungalow, Wigan-road, for Mr. T. Shaw.

STALYBRIDGE.—Plans have been approved for the erection of a new cinema. The architect is Mr. P. A. Hinchliffe, F.R.I.B.A., 14, Regent-street, Barnsley.

WALLASEY.—Mr. A N. C. Shelley, an inspector of the Ministry of Health, is to hold a local inquiry into the application by the Corporation for a provisional order to empower them to reconstruct and enlarge Seacombe Pier and Landing-stage, and to confirm or confer any necessary authority for the extension or enlargement of Egremont Pier and Landing-stage.

WEXFORD.—The R.D.C. proposes to proceed with a scheme for the erection of labourers' cottages at a cost of £12,000.

WOLVERHAMPTON.—Plans passed by T.C.: N. B. Graham, alterations and extensions, Castle-street; Mrs. Blower, house and shop, Great Brickkiln-street; Mander Bros., new roof, Townwell-fold and School-street; T. Mackie & Son, shed, Merridale-street West; M. L. Troup, bungalow, Richmond-road; Education Committee, urinal, Springfield-road Council School; E. Cox, shed, Corn-hill; Buxton & Bonnett, lavatory, 49, Dudley-street; J. Cross & Sons, workshop, Willenhall-road; United Services Recreation Grounds, army huts, off Hordern-road; F. Owen, roof over scullery, 62, Bilston-street; F. Newman & Co., Ltd., casting shop, Lever-street; Ann Aston, offices and stabling, Tettenhall-road; Mrs. Robinson, alterations, St. John's-square; J. V. Boswell, additional stabling, Avenue-road; H. E. Tolefree, wooden office, Worcester-street; Exors. of the late Miss M. Cockerill, sanitary improvements, 53, 54, 55 & 56, St. Mark's-road; Oaklands Bowling Club, Ltd., new pavilion, Lea-road; —. Risdell, shed, Birch-street; Wolverhampton Corporation Electricity Department, wooden structure, Drayton-street and Villiers-street.

WORTHING.—Plans passed by T.C.:—Addition, 97, Broadwater-street, Mr. W. Blythe, for Mrs. Manwaring; dwelling-house, garage, &c., Elm-grove, for Mr. W. Wilcox; two-story addition, "Orchard House," High-street, Mr. W. E. Sparkes, for Miss Wood; bank premises with house, Rowlands-road, Mr. F. F. Wheeler, for London County Westminster and Parr's Banking Co., Ltd.; two houses, Bulkington-avenue, Mr. J. E. Lund, for Mr. H. Arthur; addition, 39, South-street, for Messrs. Jordan & Cook; stables, garage and stores, 56, Montague-street, Mr. J. B. Allchorn, for Mr. E. H. Isted; conversion of stores, brewhouse, stabling, &c., Chatsworth-road, Messrs. F. Sandell & Sons, for The Worthing Builders Supply Co., alterations, 23, Marine-parade, Mr. T. R. Hyde, for The Southdown Motor Services, Ltd.: house, Elm-grove, Mr. W. S. Jones, for Mr. C. Packer: new drainage, Territorial headquarters, Ivy Arch-road, Mr. H. W. Sanders, for Sussex Territorial Army Association.

YORK.—Plans have been approved for the erection of 10 loose boxes at Dringhouses, York. The architects are Messrs. Brierley & Rutherford, of Lendal, York.

FIRES.

ARGOED.—The draper's shop of Mr. Sam Hughes and the local branch of the Co-operative Stores have both been destroyed by fire.

CARLISLE.—Several thousand pounds damage has been done by fire at the premises used as the Ministry of Labour Employment Exchange, at the Viaduct.

GALWAY.—The Galway electric light works have been gutted by fire. The damage is estimated at £15,000.

GLASGOW.—Damage estimated at £2,000 has been caused by an outbreak of fire, which occurred in the premises at 110, John-street, Glasgow, occupied by the Clydesdale Cabinet Works.

LEITH.—A serious outbreak of fire has occurred in Bonnington Paper Mill.

LIVERPOOL.—A serious fire has occurred in a six-story cotton warehouse in Errington-street, Derby-road, belonging to Messrs. J. H. Burns & Co.

WALSALL.—The works of Mr. W. H Arthur, saddle-tree manufacturer, St. Paul's-street, have been the scene of a somewhat serious fire.

* See also our List of Contracts, Competitions, etc.

TRADE NEWS.

The telephone number of Mr. J. Meek, timber merchant, of Tuilerie-street, E. 2, has been altered to Bishopsgate 1433.

Queen's Club, Kensington, have decided that all their hard courts are to be "En-Tout-Cas." Five new "En-Tout-Cas" courts are ordered, and the other courts are to be converted into "En-Tout-Cas."

Messrs. Browne & Tawse, Ltd., of 3, London Wall Buildings, E.C.2, inform us that Mr. T. A. Farrar, who until recently represented them in London and the south-eastern counties, is now no longer acting in that capacity.

An illustrated catalogue of the Hornsby-Stockport type gas engine and suction gas product has been issued by Messrs. Ruston & Hornsby, Ltd., of Lincoln, and will be sent to interested applicants.

Messrs. Archibald D. Dawnay & Sons, Ltd., of Battersea, S.W. 11, have issued a pocket edition of their well-known handbook dealing with constructional steelwork, copies of which will be sent to those interested on application. The information contained in this edition is not so full as in the larger book, but it contains a great deal of useful data that should be of considerable use to those engaged on constructional work.

Mr. George Richwood has relinquished his position as Sales Manager to Messrs. Millars' Timber and Trading Co., Ltd.'s Machinery Department, in order to take over the management of the Constructional Machinery Department of Gaston, Ltd., of Larden-road, Acton Vale, W. 3, who supply the "Erie" steam shovel.

The Considere Construction Co., Ltd., who for the past fourteen years have developed in the British Isles the "Considere" system of reinforced concrete design, propose pooling resources with the French firm of Pelnard-Considere & Caquot, with a view to increasing the scope of their business and giving English clients the benefit of the experience which their French colleagues have had during the past few years. Messrs. Pelnard-Considere & Caquot have designed reinforced concrete work to the value of over £4,000,000 in the past eight years.

We have received the following communication from Messrs. Radiation, Ltd.: "It is not often that a combination of manufacturers is able to fulfil speedily the promises made at its inception. When Radiation, Ltd. (comprising the six largest British manufacturers of gas apparatus), was formed, it announced as its policy the production of the best and most efficient gas appliances at the lowest possible prices. Great progress has been made in the production of new and better gas grates, which have been advertised very largely this winter, and now comes the welcome announcement of a substantial reduction in prices. This has been rendered possible by the elimination of unnecessary competitive expenditure and improved manufacturing facilities."

The net profits of the London County, Westminster & Parr's Bank, Ltd., for the past year, after providing for bad and doubtful debts and all expenses, amount to £2,167,845. This sum, added to £460,914 brought forward from 1920, leaves available the sum of £2,628,759. The dividend of 10 per cent. paid in August last on the £20 shares and 6¼ per cent. on the £1 shares absorbs £579,526. A further dividend of 10 per cent. is now declared in respect of the £20 shares, making 20 per cent. for the year; and a further dividend of 6¼ per cent. on the £1 shares will be paid, making the maximum of 12½ per cent. for the year. £500,000 has been placed to the Contingent Fund, £250,000 transferred to the Bank Premises Account, and £200,000 to the Rebuilding Account, leaving a balance of £519,708 to be carried forward.

Messrs. Lumbys, Ltd., of Halifax, have improved upon their independent boiler for domestic purposes in the form of new types of boilers named the "Royal Beacon." The outstanding points of these boilers are the ash-pan (which allows the ashes to be removed without causing any trouble with dust), a door (which when let down acts as a trivet), and a bracket shelf. The top casting serves the purpose of a hot plate and is fitted with rings, thus allowing for kettles or pans to be heated. Ordinary house coal may be burnt with an open fire when the double doors are opened. Coke or anthracite may be banked up and left for the night, so that it is thus possible to obtain hot-water at any time, day or night. These boilers are made in three sizes, sufficient to supply water for from one to five baths. The No. 2 size boiler has been re-designed and considerably enlarged, and the No. 3 size boiler is of an entirely new pattern and design. The London office and showrooms of the firm are at 26, Hart-street, W.C.1.

Holidays in Belgium.

The Great Eastern Railway Co. has decided to run again this year the short sea service between Harwich and Zeebrugge, which provides a convenient route for visitors travelling to the Belgian coast resorts, Blakenberghe, Heyst and Knocke, also Bruges, Ghent, and other parts of Belgium. The service will commence on June 1 and will be run six times every week in each direction instead of three times as last year. A restaurant and pullman car non-stop express in connection with the steamers will leave London (Liverpool-street) at 8.40 p.m., and in the reverse direction will bring passengers into Liverpool-street at 8.0 a.m.

Industrial League and Council.

An amalgamation has just taken place which will considerably widen the scope of the work of the Industrial League and Council. Originally founded to improve industrial relations and to foster the growth of Whitley Councils, the League has done excellent work in the past few years by organising conferences and meetings between employers and employed in the industrial centres of the country. Now the educational side of the League is to be widened with the assistance of industrial information, which for the past two and a half years under the supervision of Mr. Sydney Walton, C.B.E., has been working on independent lines in an endeavour to extend the education of economics among the mass of people.

Building Materials for Peru.

A local company, with head offices in the United States, is desirous of entering into communication with United Kingdom firms in a position to offer all classes of building materials employed in modern reinforced concrete structures, including Portland cement, steel reinforcing bars (both smooth and indented), steel wire mesh and lathing, electrical material and fittings, glass, galvanised iron water pipes and fittings, composition flooring, glazed tiles and electric elevators, electric motors, gas engines, water pumps, &c. The firm is stated to be the contractor for the erection of a number of buildings on behalf of the Peruvian church authorities, who, it is understood, are in a position to effect prompt payment for the work. United Kingdom manufacturers and exporters may obtain the name and address of the company on application to the Department of Overseas Trade, 35, Old Queen-street, S.W. 1. —Reference 5590–F.L.–S.C. (2).

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

***Denotes *accepted*. † Denotes *provisionally accepted*. ‡ Denotes *recommended for acceptance*. § Denotes *accepted subject to modifications*.**

ARDWICK.—For erection of 20 houses, for the U.D.C.:—

*T. Gledhill, Doncaster	£8,600

ADWICK-LE-STREET.—For fencing section of Skellow housing scheme, for the U.D.C. Mr. G. Gledhill, Surveyor, Council Offices, Adwick-le-Street. Quantities by Surveyor:—

Girling Ferro-Concrete Co., Leeds	£960	1	0
E. S. Knight, Doncaster	777	2	1½
Angus Rothera, Askern	672	15	4
*Swift Bros. & Haslam, Doncaster	643	15	0

BARNES.—For making-up Gilpin-avenue, for the U.D.C. Mr. G. Bruce Tomes, Surveyor, Council House, Mortlake, S.W.:—

E. Parry & Co., Putney	£449	0	0
G. Wimpey & Son, Hammersmith	450	0	0
W. Walkerdine, Ltd., Kensington	469	0	0
Parr-Head & Clements Knowling, Ltd., Ealing	487	0	0
Woodham & Son, Catford	547	0	0
*J. Mowlem & Co., London	425	10	7

BERMONDSEY.—For receiving wards, mental wards, and motor garage at the Bermondsey and Rotherhithe Hospital, for the Guardians of the Parish of Bermondsey. Mr. Henry C. Reeve, Clerk, 283, Tooley-street, S.E.1:—

J. E. Billings & Co., Ltd., Oxford	£13,616	8	2
Wm. Daley & Co., London	14,079	0	0
Edwards Construction Co., Ltd., London	13,605	0	0
Geo. E. Everitt, London	14,090	0	0
John Greenwood, Ltd., London	13,391	0	0
Wm. Harbrow, Ltd., London	13,329	0	0
R. Merton Hughes, London	12,471	0	0
Arthur H. Inns, London	16,466	0	0
Henry Kent, London	12,986	0	0
H. Lacey & Sons, Luton	12,519	15	0
J. Laing & Son, Ltd., London	12,073	12	0
F. J. Lovell & Son, London	13,194	0	0
*R. Mansell, London	11,988	0	0
William Saint, Ltd., Cambridge	14,609	0	0
Thos. Shillitoe, London	13,475	0	0
H. W. Spinks, London	13,560	0	0
Thomas & Edge, London	13,775	0	0
J. L. Woodhams, London	12,219	19	0
R. Woollaston & Co., London	12,776	0	0

CARSHALTON.—For cleaning, repairing and painting two cottages at Green Wrythe-lane, for the U.D.C. Mr. C. P. Lovelock, Town Clerk, Carshalton:—

Nibloc Syndicate, Carshalton	£153	0	0
P. Actord, Carshalton	136	0	0
W. H. Walpole & Sons, Sutton	117	15	0
Burgess & Montague, Carshalton	113	12	5
C. Sayers & Son, Mitcham	105	4	0
Brown & Winter, Wallington	94	2	6
G. Treadwell, Carshalton	78	10	0
G. Wright, Carshalton	78	0	0
C. Kennett	77	15	6
G. E. Fowkes, Cheam	74	13	6
*White & Sons, Carshalton	67	18	6

CHEPSTOW.—For sewerage works at Caldicot, for the R.D.C.:—

*E. Hobbs, Chepstow	£1,193 4

CLACTON-ON-SEA.—For erection of residence. Mr. G. H. B. Gould, architect, Station-road, Clacton-on-Sea:—

W. J. Grant & Co., Kensington	£5,780	0	
W. Green, Frinton-on-Sea	5,035	12	
R. Beaumont & Sons, Colchester	4,998	0	
W. Chambers & Sons, Colchester	4,995	0	
Percy J. Turner, Ipswich	4,989	0	
Hy. Potter, Chelmsford	4,977	0	
Hy. Collins, Clacton-on-Sea	4,940	0	
Wm. Saint, Ltd., Cambridge	4,911	0	
Cubitt & Gotts, Ipswich	4,775	0	
Winter & Ward, Harpenden, Herts	4,685	0	
H. Smith & Sons, Clacton-on-Sea	4,385	0	
Fredk. Hitch & Co., Ware	4,365	0	
J. Noller, Ipswich	4,356	0	
*F. W. King, Clacton-on-Sea	3,800	0	

GLASGOW.—For various trades in connection with erection of 200 houses at Shettleston, for the Glasgow T.C.:—

*The National Building Guild—*Slater work*	£11,772	9	9
*John Phillips—*Plumber work*	18,748	19	9
*H. S. Bathgate—*Plaster work*	9,435	6	1
*Johnston & Roberton—*Painter work*	3,153	4	4

CANTERBURY.—For erection of eight Type "A" houses and four Type "B," for the T.C. Mr. F. H Doré, Architect and Surveyor, 25, Watling-street, Canterbury:—

	Type "A," per House. Open Market.	Type "A," per House. D.B.M.S.	Type "B," per House. Open Market.	Type "B," per House. D.B.M.S.
W. J. Gregory & Son, Colwyn Bay	£828 0 0	£883 0 0	£905 0 0	£965 0 0
F. Caspall, Dover	825 0 6	907 12 6	859 0 8	923 0 0
Davis & Leaney, Goudhurst	673 2 2	—	758 2 7	—
S. Vant, Folkestone	640 3 7	—	688 12 0	—
J. Parkinson & Sons, London	616 0 0	626 0 0	636 0 0	646 0 0
Crosby & Co., Farnham	607 0 0	611 0 0	654 0 0	659 0 0
A. J. Fortescue, Ashford	579 0 0	589 10 0	631 9 6	644 0 0
Wood Bros., Ltd., London	570 0 0	586 0 0	590 0 0	606 0 0
C. W. Lyons, Canterbury	553 10 0	561 8 0	613 0 0	625 0 0
G. Browning, Canterbury	526 10 0	530 10 0	590 0 0	593 0 0
A. Ross & Co, Westgate-on-Sea	516 3 4	516 3 4	546 4 4	546 4 0
W. T. Champion & Son, Peckham Rye	498 10 0	508 19 0	539 10 0	549 19 4
*R. Merton Hughes, London	484 0 0	494 0 0	529 0 0	539 0 0

CRAYFORD.—For building 14 parlour-type and 36 non-parlour-type houses, including roads and sewers, for the Crayford U.D.C. Mr. Walter F. Bickford, Engineer, Surveyor, and Housing Architect, Crayford, Kent :—

—	"B1" Type 4 Houses.	"B2" Type 10 Houses.	"A1" Type 18 Houses.	"A2" Type 14 Houses.	"A3" Type 4 Houses.	Fencing, Paths, Drains, &c.	Roads, Footpaths, Foul and Surface Water Sewer, &c.	Foul Water Sewer on Public Highway.	Surface Water Sewer on Public Highway.	Provisional Sum.	Total.
J. W. Trudgett	2,800 0 0	7,900 0 0	11,070 0	8,960 0 0	2,700 0 0	←Tender Incomplete→					
G. H. Gunning & Sons	2,592 0 0	5,810 0 0	9,756 0	7,518 0 0	2,160 0 0	2,977 0 0	←Tender Incomplete→				
W. J. Parker & Co.	2,740 0 0	7,500 0 0	11,502 0	8,932 0 0	2,632 0 0	3,200 0 0	6,875 0 0	400 0 0	2,000 0 0	100 0	45,881 0 0
C. Miskin & Co., Ltd.	2,484 0 0	6,795 0 0	10,566 0	8,190 0 0	2,460 0 0	3,165 0 0	6,212 0 0	604 0 0	2,318 0 0	100 0	42,894 0 0
H. Friday & Sons	2,840 0 0	7,700 0 0	11,340 0	8,750 0 0	2,540 0 0	2,780 0 0	←Combined in Grand Total→			100 0	42,670 0 0
Woodhams & Sons	2,468 0 0	6,780 0 0	10,332 0	8,092 0 0	2,432 0 0	3,021 0 0	5,818 0 0	569 0 0	2,011 0 0	100 0	41,623 0 0
W. Pattinson & Co., Ltd.	2,460 0 0	6,800 0 0	10,296 0	8,106 0 0	2,420 0 0	2,861 0 0	5,735 10 0	525 0 0	1,987 0 0	100 0	41,290 10 0
Davis & Leaney	2,624 0 0	7,210 0 0	10,890 0	8,498 0 0	2,588 0 0	2,431 0 0	4,383 0 0	218 0 0	806 0 0	100 0	39,748 0 0
J. Wallis & Sons	2,560 0 0	5,200 0 0	8,550 0	7,952 0 0	1,720 0 0	2,580 0 0	←Combined in Grand Total→			100 0	39,606 0 0
W. F. Blay, Ltd.	2,410 10 0	6,650 0 0	9,972 0	7,910 0 0	2,348 0 0	2,429 0 0	4,833 10 0	375 0 0	1,595 0 0	100 0	38,623 0 0
S. E. Moss	2,475 0 0	6,670 0 0	10,345 0	8,312 6 3	2,263 11 3	2,015 2 6	←Combined in Grand Total→			100 0	38,459 15 0
Guild of Builders (London), Ltd.	2,232 0 0	5,700 0 0	9,090 0	7,000 0 0	2,000 0 0	3,525 0 0	6,267 0 0	195 0 0	1,645 0 0	100 0	38,754 0 0
Thomas & Edge	2,320 0 0	6,550 0 0	10,080 0	7,770 0 0	2,340 0 0	2,396 0 0	3,985 0 0	260 0 0	1,805 0 0	100 0	37,606 0 0
Trollope & Colls, Ltd.	2,460 0 0	6,280 0 0	10,404 0	8,190 0 0	2,272 0 0	1,758 0 0	4,542 0 0	166 0 0	869 0 0	100 0	37,041 0 0
J. W. Ellingham	2,460 0 0	6,780 0 0	10,134 0	7,994 0 0	2,396 0 0	1,715 0 0	—	—	—	100 0	36,593 0 0
O. M. Keevil	2,452 0 0	6,780 0 0	8,960 0	7,222 0 0	2,110 0 0	2,810 0 0	5,321 0 0	429 10 0	1,825 10 0	100 0	36,512 0 0
T. Wood & Son	2,064 0 0	5,870 0 0	9,000 0	8,176 0 0	2,412 0 0	1,484 0 0	3,557 0 0	260 0 0	443 0 0	100 0	33,986 0 0
Alban Richards & Co., Ltd.	2,364 0 0	6,190 0 0	8,892 0	6,853 0 0	1,960 0 0	1,645 0 0	4,079 0 0	205 0 0	1,115 0 0	100 0	32,872 0 0
A. L. & H. W. Chown	2,168 0 0	5,555 0 0	8,370 0	6,440 0 0	1,840 0 0	1,750 0 0	3,905 0 0	380 0 0	1,375 0 0	100 0	31,240 0 0
W. Higgins	2,080 0 0	5,000 0 0	8,640 0	6,720 0 0	1,960 0 0	1,541 0 0	2,980 0 0	113 0 0	664 0 0	100 0	30,418 0 0
W. Jones & Sons	2,120 0 0	5,580 0 0	7,965 0	6,104 0 0	1,848 0 0	1,689 0 0	4,107 10 0	183 0 0	835 0 0	100 0	29,961 10 0
John Laing & Sons, Ltd.	1,880 0 0	5,250 0 0	8,167 8	6,198 7 8	1,769 5 0	1,554 6 2	3,343 7 7	231 18 5	824 15 4	100 0	29,188 16 2
E. Clarke	2,000 9 8	4,998 18 4	7,632 0	6,006 0 0	1,724 0 0	1,647 0 0	3,437 0 0	272 0 0	855 0 0	100 0	28,261 0 0
†R. Lehane & Co., Ltd.	1,908 0 0	4,680 0 0	7,546 10	5,937 15 0	1,735 10 0	314 5 8	2,751 18 3	142 0 0	671 14 0	100 0	26,183 12 1
	1,884 0 0	5,100 0 0	←(Note.—Drains and paths included.)→			(Boundary fence only.)					

GLASGOW.—For reconstruction of roads at Loch Katrine, for the T.C. :—

*P. M'Bride & Co., Port Glasgow	£26,730

GLOSSOP.—For alteration and extension of sewage outfall works, for the T.C. Messrs. Brady & Partington, Engineers, Town Hall, Chapel-en-le-Frith :—

H. E. Buckley, Bradford	£37,647 0 0
Thomas Warrington, Hyde	31,922 2 11
W. Howard & Sons, Glossop	31,693 6 1
Jas. H. Williams, Manchester	31,445 14 9
Edwin Marshall & Sons, Ashton-under-Lyne	31,242 16 10
J. J. Middleton & Co. (Shaw, Ltd.), Oldham	30,999 0 0
Sir Robert McAlpine & Sons, Huddersfield	30,968 17 5
Wm. Muirhead, Macdonald, Wilson & Co., Ltd., Birmingham	30,906 16 3
Evans Bros., Derby	30,789 16 10
Wm. Norgrove & Sons, Ltd., Hyde	30,553 6 0
Alex. Hyslop, Manchester	30,257 4 4
Harry Fairclough, Warrington	30,105 19 6
Samuel Goddard, Glossop	28,917 0 9
Wm. Moss & Sons, Loughborough	28,601 0 0
John Dickinson & Co. (Bolton), Ltd., Bolton	28,332 11 0
Chas. Wade, Luddenden Foot	28,175 15 0
M. A. Boswell, Wolverhampton	27,582 0 0
W. Turner (Ardwick), Ltd., Manchester	27,034 7 9
Price & Co., Nottingham	27,023 14 3
Daniel Eadie & Co., Ltd., Stockport	26,610 0 0
Walter Jones & Sons, Westminster	26,550 18 8
Middleton Bros., Glossop	26,474 10 0
Timothy Patrick, Bradford	25,832 6 8
Abraham Graham, Huddersfield	25,600 0 0
*Collins & Co., Radcliffe	25,182 10 0

GOLDTHORPE.—For erection of house and shop and four lock-up shops, Barnsley-road. Mr. P. A. Hinchliffe, architect, 14, Regent-street, Barnsley :—

*B. Groves, Goldthorpe	£2,800

GOOLE.—For painting interior of public baths, Pasture-road, for the U.D.C. Mr. J. H. Castle, Engineer and Surveyor, Council Offices, Goole :—

J. W. Morrill, Goole	£129 10

HAROLD COURT.—(*a*) Erection of larder and cold store; (*b*) laying new sewer at the asylum, for the Essex C.C. :—

*(*a*) Myall Bros.	£344 0 0
(*b*) Ditto	1,045 12 6

HARROGATE.—For private street improvement works to back Beulah-street, for the Corporation. Mr. C. E. Rivers, Borough Engineer and Surveyor, Harrogate :—

*C. H. Dickinson, Harrogate	£642 11

HARTLAND.—For drainage scheme at the Parish Church. Mr. F. J. Wilton, Myrtle Cottage, Hartland :—

Wm. Mugford, Hartland	£189

HAYWARDS HEATH.—For completion of a house, for Mr. H. H. Sharpe. Mr. A. J. McLean, architect, 65, Haywards-road, Haywards Heath :—

Anscombe & Sons, Lindfield	£1,070 7 9
T. E. & J. Muzzell, Haywards Heath	1,040 0 0
Wm. Ball, Burgess Hill	850 0 0
Thomas White, Haywards Heath	845 0 0
*Hall & Co., Dulwich	600 0 0

HOVE.—For redecoration, alterations and additions at No. 30, New Church-road, for A. Cohen. Mr. Chas. H. Isaacs, architect, 26, Ludgate-hill, E.C.4 :—

J. H. Hackman, Ltd.	£1,403 10 0
Field & Cox	1,370 15 0
Parsons & Sons	1,339 0 0
*McKellar & Westerman	1,258 0 0
Electrical installation—	
*Page & Miles	93 3 9

KIRKCALDY.—For widening Abbotshall and Bennochy-roads, also at corner of Wemyssfield and St. Brycedale-avenue, for the T.C. Mr. W. L. Macindoe, Town Clerk, Kirkcaldy :—

*Alexr. Fraser, Kirkcaldy	£4,514 6 7

LANCASTER.—For erection of semi-detached houses, Hest Bank, for Messrs. Moore & Sutcliffe. Messrs. Jackson & Jackson, architects and surveyors, 43, Church-street, Lancaster :—

*R. L. Dilworth (*Mason*), Lancaster	£1,120 0 0
*W. & I. Peill (*Joiner*), Lancaster	595 19 7
*W. Turner (*Plumber*), Lancaster	261 19 5
*T. Gardner, Lancaster	504 12 1

LONDON.—The following tenders have been accepted, for the Metropolitan Asylums Board :—

Leavesden Mental Hospital—Installation of steam pipe peel oven :

J. Baker, Sons & Perkins, Ltd., Peterborough	£773 15 0
T. Hunt & Sons, Battersea	750 0 0
H. Smith & Son, Lambeth	672 0 0
H. Heaton, Harlow	546 0 0
A. Hunt, Ltd., Leicester	535 0 0
*T. Collins & Co., Bristol	435 0 0

Grove Hospital—Rebuilding and strengthening portions of boundary wall :

J. Nash & Sons, Wandsworth	£700 0 0
W. Hussey, S.W.	539 0 0
E. Green, Southfields	476 0 0
F. Foxley & Co., Ltd., W.	458 0 0
J. Darch, Ltd., E.C.	450 0 0
A. H. Sheppard, Clapham	416 13 6
J. A. Sampson & C. Hutchcroft, Wandsworth	398 15 6
H. H. Hollingsworth, Peckham	393 0 0
F. J. Rashbrook, Wandsworth	376 0 0
A. G. Winters, Norwood	360 0 0
Chappell Bros., Balham	305 0 0
A. Logan, S.W.	303 0 0
J. Fox & Sons, Balham	300 0 0
J. Galloway & Co., N.	295 0 0
J. Sands, Tooting	290 0 0
R. Haslam & Son, Woolwich	280 0 0
Eaglen Bros., Lee	252 17 6
*H. G. Mills, Tottenham	240 0 0

Pinewood—External painting and repairs :

R. H. Marsh, Brockley	£2,495 0 0
T. J. Gabb, Ltd., E.C.	896 4 6
H. Childs, Reading	765 0 0
Wheeler Bros. (of Reading), Ltd., Reading	756 0 0
J. B. Seward & Co., Wokingham	631 3 0
Spear & King, Crowthorne	582 0 0
*Norris & Co., Sunningdale	543 0 0

Eastern Hospital—Installation of continuous drying machine :

T. Bradford & Co., W.C.	£511 0 0
Dallow, Lambert & Co., Ltd., E.C.	438 0 0
I. Braithwaite & Son, Ltd., E.C.	430 0 0
J. J. Lane, Ltd., Old Ford	425 0 0
J. Keith & Blackman Co., Ltd., E.C.	420 0 0
J. Armstrong & Co., Ltd., E.C.	385 0 0
W. W. Wardle & Sons, Finsbury	381 0 0

Tooting Bec Mental Hospital—Supply of pitch pine coving angle blocks for floors of dayrooms and single bedded rooms, and also for the necessary teak rounded angles for ward covings, viz. :—

Hibberd Bros., Ltd	£214 8 0
C Jay Cole, Ltd.	201 11 0
J. Nutting & Sons	194 16 0
W. Duncan Tucker & Sons, Ltd.	175 17 6
E. Morley & Sons	169 3 4
*Chessums, Ltd.	152 13 0

LONDON.—For supply of materials &c., to the Greenwich B.C. :—

*Brookes, Ltd.—2 in. granite, 25s. per ton; 1½ in., 25s. per ton; chippings, 21s. to 23s. per ton (delivered at wharf).	
*John Nelson & Robt. Elmslie, Maidstone—2 in. and 1½ in. broken ragstone, at 15s. 3d. per ton; ¾ in. to ¾ in. ragstone chippings, 16s. per ton.	
*T. Scholey & Co.—Thames ballast, 3s. 4½d. per ton.	
*W. Penfold—Sand, 10s. per ton.	
*S. West, Ltd.—Crushed grit, 9s. per ton.	
*Tilbury Contracting and Dredging Co.—Tar paving composition: 2½ in., 29s. per ton; 2 in., 32s.; 1½ in., 34s.; ¾ in., 35s. 3d.; ½ in., 36s.	

LONDON.—For carriageway repairs at (*a*) Old Bond-street (second-hand blocks), and (*b*) Charing Cross (new blocks), for the Westminster City Council :—

	(*a*)	(*b*)
Acme Flooring & Paving Co. (1904), Ltd.	£376 2 6	£523 9 6
G. J. Anderson	323 15 0	476 15 0
*Wm. Griffiths & Co., Ltd.	*302 17 6	535 2 6
*Improved Wood Pavement Co., Ltd.	328 5 0	*466 1 8
Alexander Thomson & Co.	318 10 0	470 0 6

LONDON.—For the erection of 62 maisonettes in Daubeney-road, &c., for the Hackney B.C. :—

Allen Fairhead & Son, Enfield	£32,971
Alfred G. Winters, Norwood	31,741
*F. & G. Foster, Norwood	30,465

(There were 26 tenders, ranging from £30,465 to £48,424.)

LONDON.—Supply of materials to the St. Marylebone B.C. :—

*A. C. Woodrow, W.C.1—Ironwork for sewers and iron castings	per cwt. 10s. 6d.
*Cement Marketing Co., Ltd.—Portland cement	per ton 70s. 6d.
*Wakely Bros. & Co., Ltd., S.E.1—Ditto	—
*J. H. Sankey & Co., Ltd., Canning Town—Ditto	—
*H. Covington & Sons, Ltd., Battersea—Thames ballast	per cu. yd. 13s. 3d.
*Henry Boyer, Paddington—Thames sand	16s. 6d.
*H. Sabey & Co., Paddington—¾ in. crushed ballast	13s. 0d.

MANSFIELD.—For erection of 24 houses, Type "A," in pairs, eight blocks of design "A1" (facing south), and four blocks of design "C2" (facing north), at Booth-crescent, for the B.C. Mr. Waude Thompson, Borough Engineer and Surveyor, Mansfield :—

Melling Bros., Ltd., Sheffield	£20,120 0 0
A. Richmond & Sons, Retford	14,646 0 0
Underwood Bros., Shirebrook	14,281 11 0
Chas. Jeyes, Luton	14,156 0 0
A. Sanders & Son, Coventry	13,694 12 2
J. Allison & Sons, Pocklington	13,640 0 0
S. P. Stow, East Kirkby	13,377 0 0
H. Bunting & Son, Mansfield	13,180 0 0
H. Blythe & Son, Mansfield	13,086 2 8
Rogers & Crooks, Ltd., Mansfield	12,714 0 0
J. H. S. Randall, Ltd., Sheffield	12,686 8 2
A. L. & H. W. Chown, Northampton	12,546 0 0
Thos. Moore, Mansfield	12,201 11 4
John Harvey, Mansfield	12,121 19 0
R. Lehane & Co., Darley Dale	12,126 8 6
R. Moore, Mansfield	11,987 0 0
E. Allcock & Sons, Eastwood	11,956 0 0
W. Jones & Sons, London	11,853 0 0
S. Gee & Sons, Ltd., Derby	11,750 0 0
H. Baggaley, Mansfield	11,595 9 2
E. Morley & Sons, Derby	11,480 0 0
Markwell Holmes & Co., Ltd., Grimsby	11,384 0 0
Hayes Bros., Nottingham	11,340 0 0
H. James, Junr., Mansfield	11,328 0 0
I. Slack, Junr., Mansfield	11,014 0 0
†Bernard Pumfrey, Ltd., Gainsborough	10,970 0 0

MID-GLAMORGAN.—For providing and laying (1) about 320 lineal yards of 4 in. and 800 yards of 3 in. diameter cast-iron mains, &c., at Sarn; (2) about 200 lineal yards of 6 in. and 650 lineal yards of 3 in. cast-iron mains, &c., at Kenfig Hill, for the Mid-Glamorgan Water Board. Mr. E. W. Davies, Manager, Water Board Offices, Bridgend :—

Sarn—

W. E. Dearman, Penyfai	£1,032	10	2
E. Ivor Davies, Bridgend	997	3	6
W. A. Jones, Llantwit Major	895	13	6
J. Randall, Bridgend	895	8	0
Beaver & Sons, Westminster	871	2	9
Jno. Cochrane & Son, London	859	18	0
Barnes & Chaplin & Co., Cardiff	763	17	0
J. E. Williams, Caerphilly	683	12	2
Watson & Horrocks, Bridgend	663	18	0
Barry & Daniel, Tondu	657	16	0
A. Farley, Pontardulais	617	12	4
*Rees Jones, Jr., Coychurch	565	2	6
Kenfig Hill—			
Jno. Randall	£941	5	6
W. E. Dearman	926	14	3
E. Ivor Davies	852	17	3
Barry & Daniel	839	10	0
Beaver & Sons	807	5	11
Jno. Cochrane & Sons	756	16	0
W. A. Jones	742	2	3
Barnes & Chaplin & Co.	666	15	6
J. E. Williams	640	8	0
Watson & Horrocks	594	11	3
A. Farley	544	5	11
*Rees Jones, Jr.	503	15	3

ROCHDALE.—For (*a*) Smith-street Baths, internal painting; (*b*) external painting; (*c*) Castleton Branch Baths, external painting, for the T.C. The Borough Surveyor, Town Hall, Rochdale :—

*A. & J. W. Lord, Rochdale.

SPENBOROUGH.—For making-up new street, Rawfolds, Liversedge, for the U.D.C. Mr. A. Rothera, Surveyor, Town Hall, Cleckheaton :—

Beaumont & Co., Huddersfield.
*D. Brown, Cleckheaton.
A. Graham & Sons, Huddersfield.
A. Graham, Huddersfield.
H. C. Pullar & Co., Manchester.
G. Riley, Luddendenfoot.
Campbell Kenyon & Co., Acton.

ST. AUSTELL.—For construction of sewage works at St. Blazey, for the R.D.C. Mr. F. C. Uren, engineer, St. Ives. Quantities by engineer :—

A. Shellabeer & Co., Plymouth	£21,800
Buchan & Co., Southwick	15,391
Stanbury, Torquay	14,800
Wilcox & Co., St. Austell	14,671
F. Bennett, Bodmin	14,637
P. A. Johnson, St. Austell	13,660
A. H. Dingle, Redruth	13,388
Alderman & Co., Par	12,900
A. J. Steer, St. Austell	12,584
W. H. Smith & Son, Torquay	11,806
G. P. Trentham & Co., Birmingham	10,889
*Carkeek & Sons, Redruth	9,927

STEETON.—For erection of eight houses, for Keighley R.D.C. Mr. J. N. Clarkson, 40, North-street, Keighley. Quantities by Mr. T. Burton, Marke Chambers, Keighley :—

*William Thornton, Bingley	£264	0	0
*Fred Barrett, Keighley	78	6	5
*A. Speak, Keighley	335	0	0
*Frank Mudd & Son, Bradford	416	0	0
*H. V. Robinson, Ltd., Keighley	1,530	0	0
*Greenhow & Murgatroyd, Keighley	746	0	0

WOLVERHAMPTON.—Resurfacing (*a*) Rayleigh-road; (*b*) Owen-road; and (*c*) Queen-street, with "Tarmac," for the T.C. :—

*Tarmac, Ltd.	(*a*)	£1,400
	(*b*)	1,042
	(*c*)	410

WOLVERHAMPTON.—For tar painting various roads, for the T.C. :—

*Johnston Bros. 3½d. per super yd.

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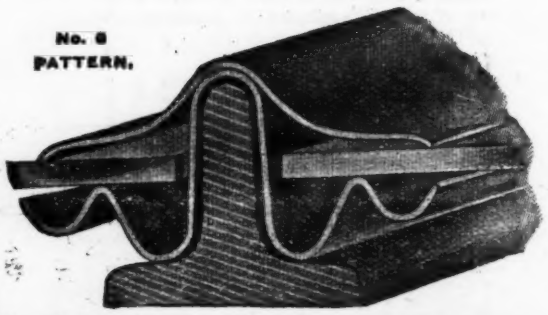
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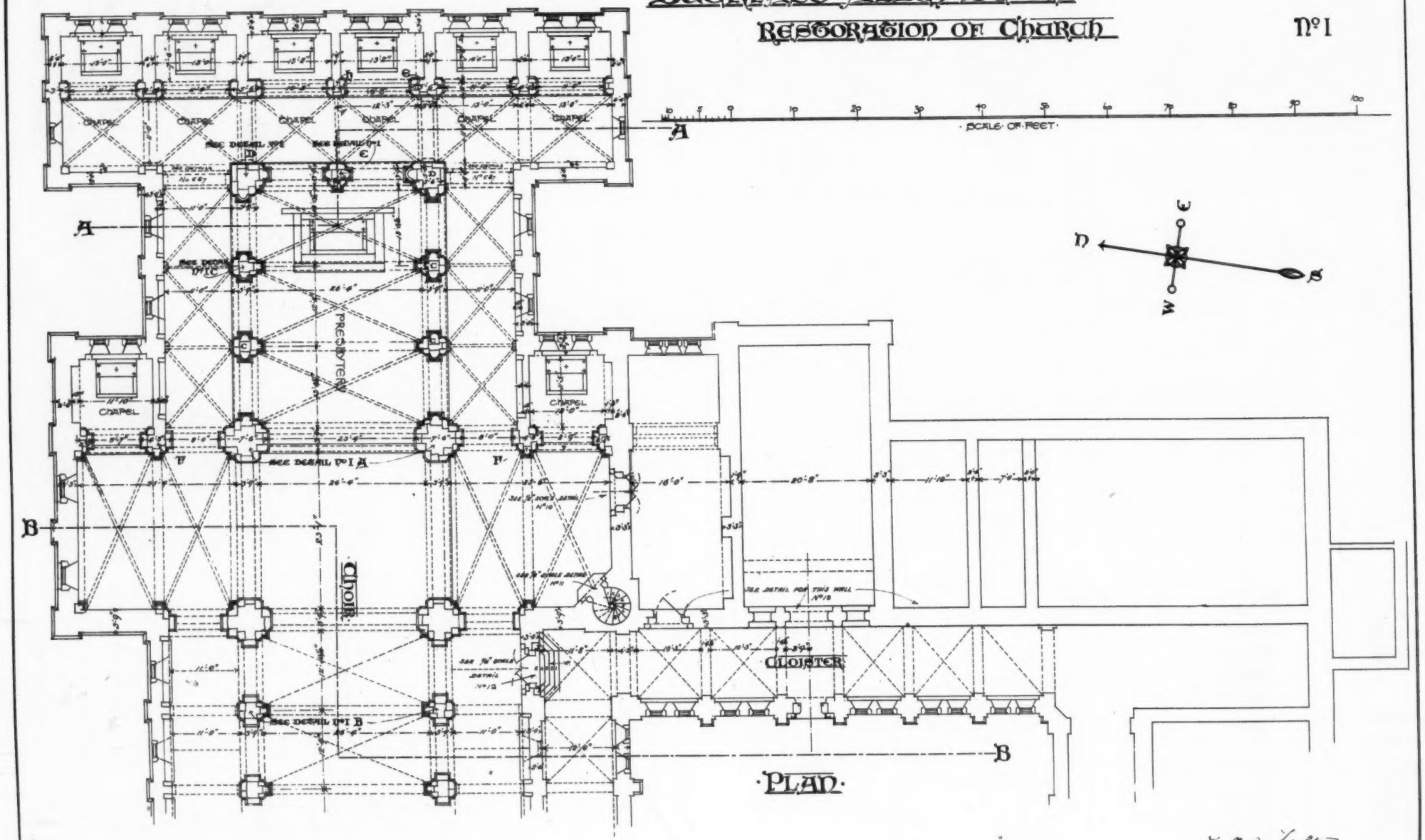
BUCKFAST ABBEY DEVON

RESTORATION OF CHURCH

Nº 1



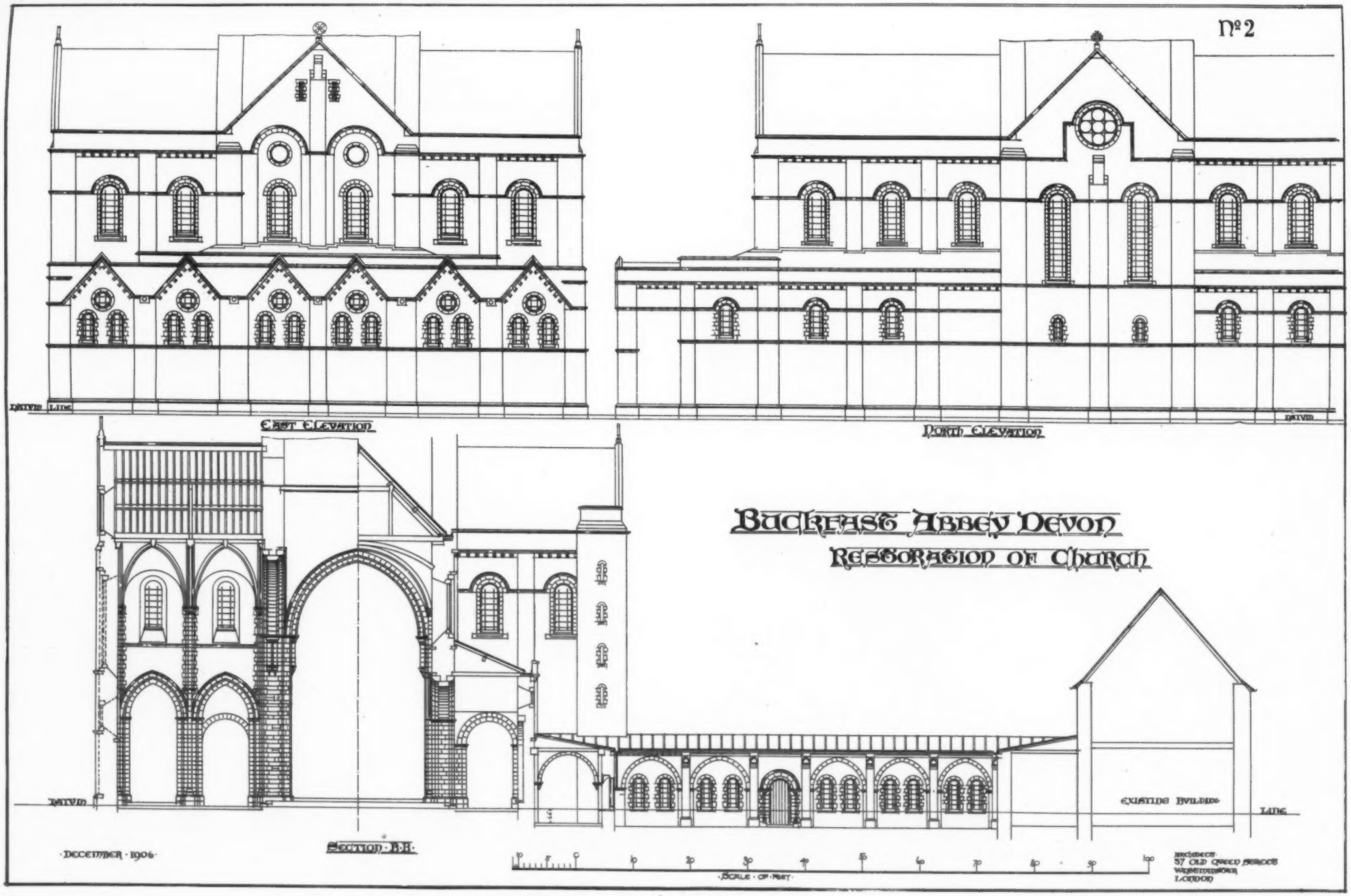
·PLAN·

DECEMBER · 1906 ·

F. B. A. Walters

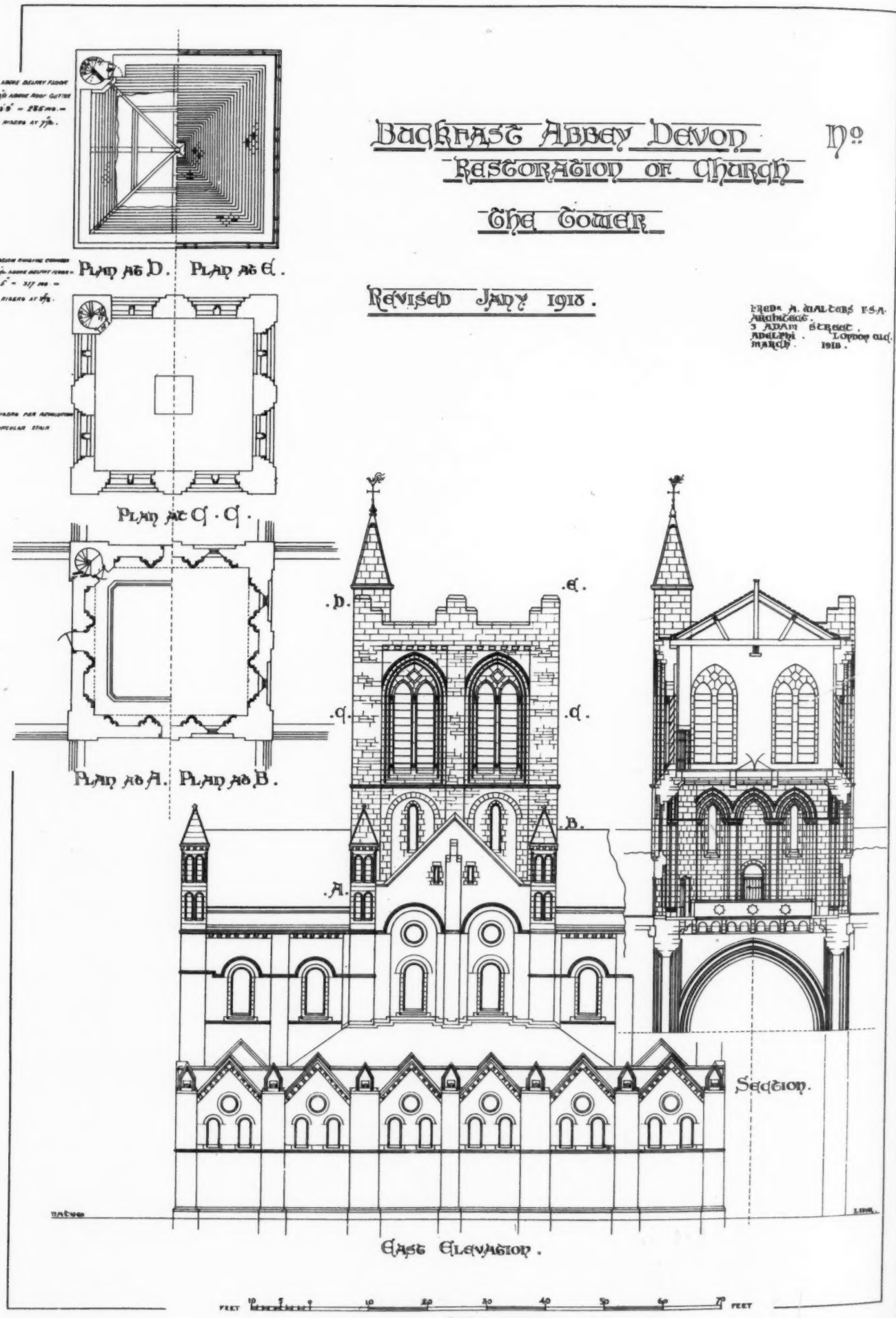
Architect
37 and 38 Queen Square
Westminster
London

THE BUILDER, MARCH 24, 1922.



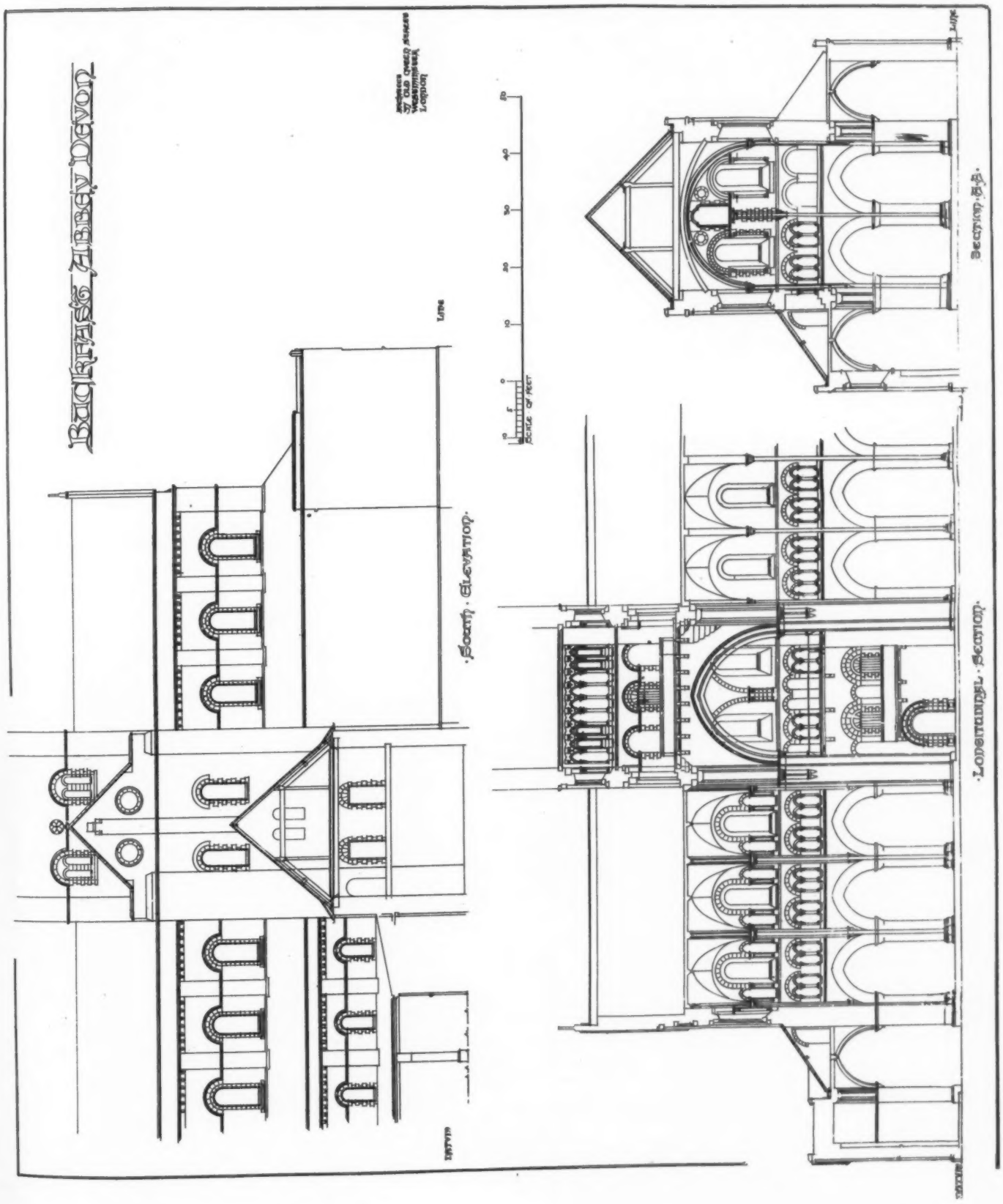
Mr. Frederick A. Walters, Architect.

Mr. Frederick A. Walters, Architect.

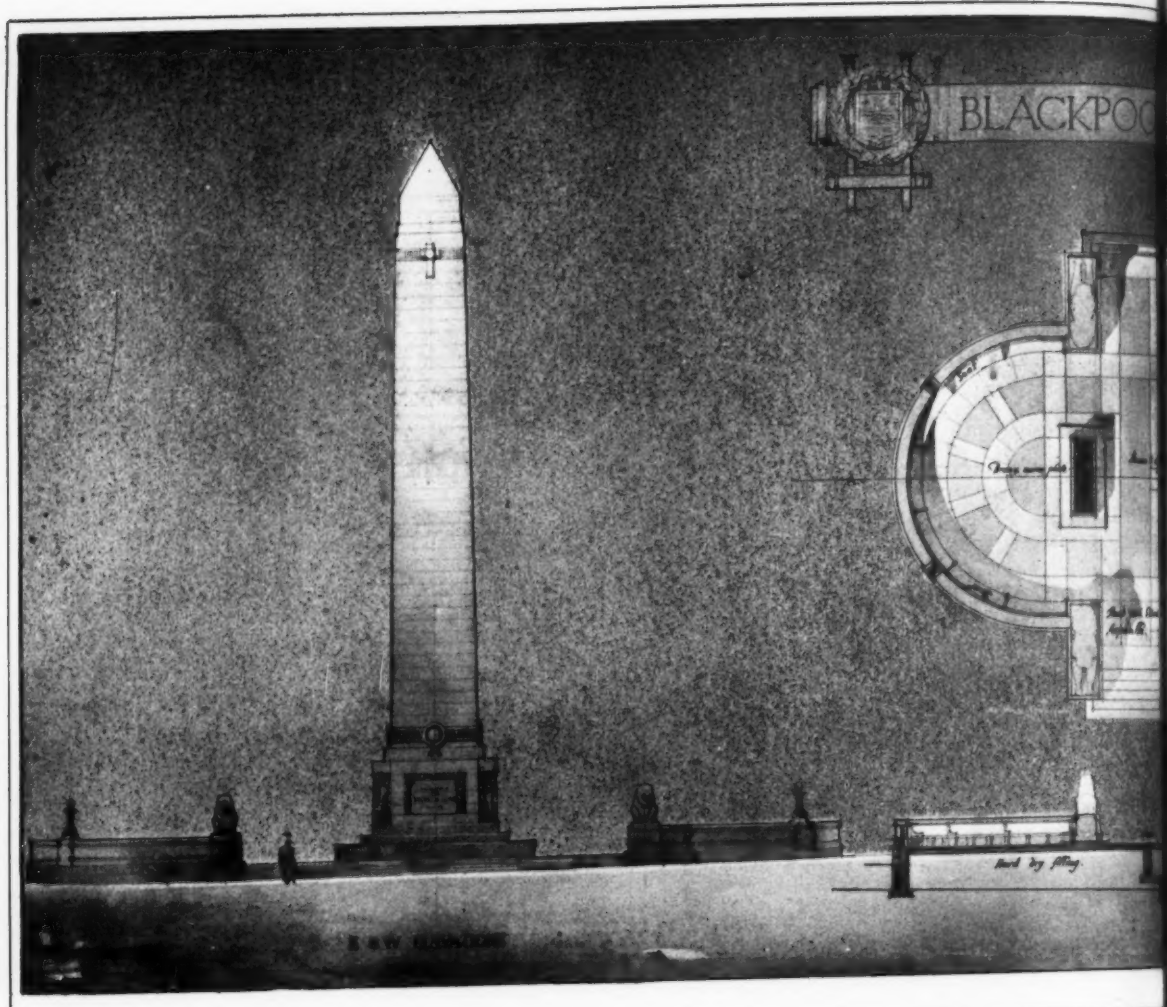


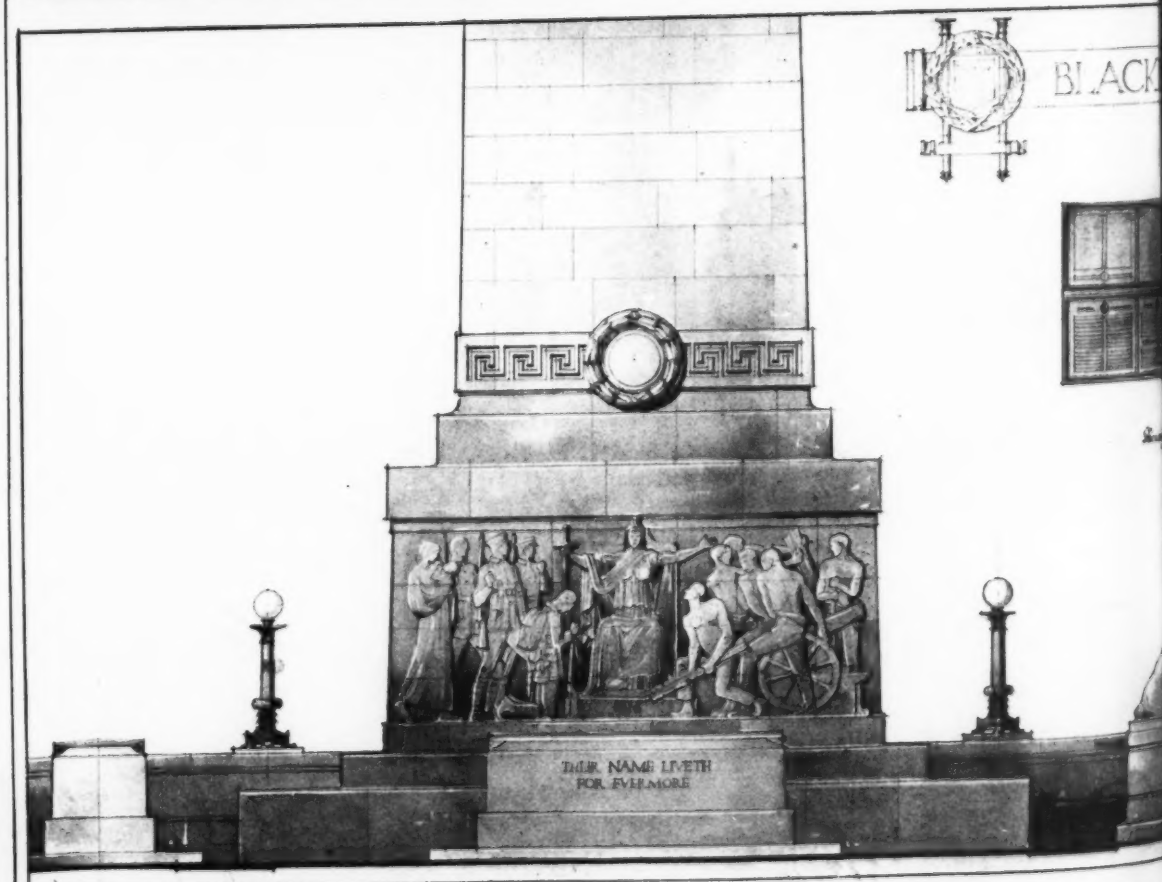
Mr. Frederick A. Walters, Architect.

BAGRATE'S ABBEY, DEVON



MR. FREDERICK A. WALTERS, ARCHITECT.

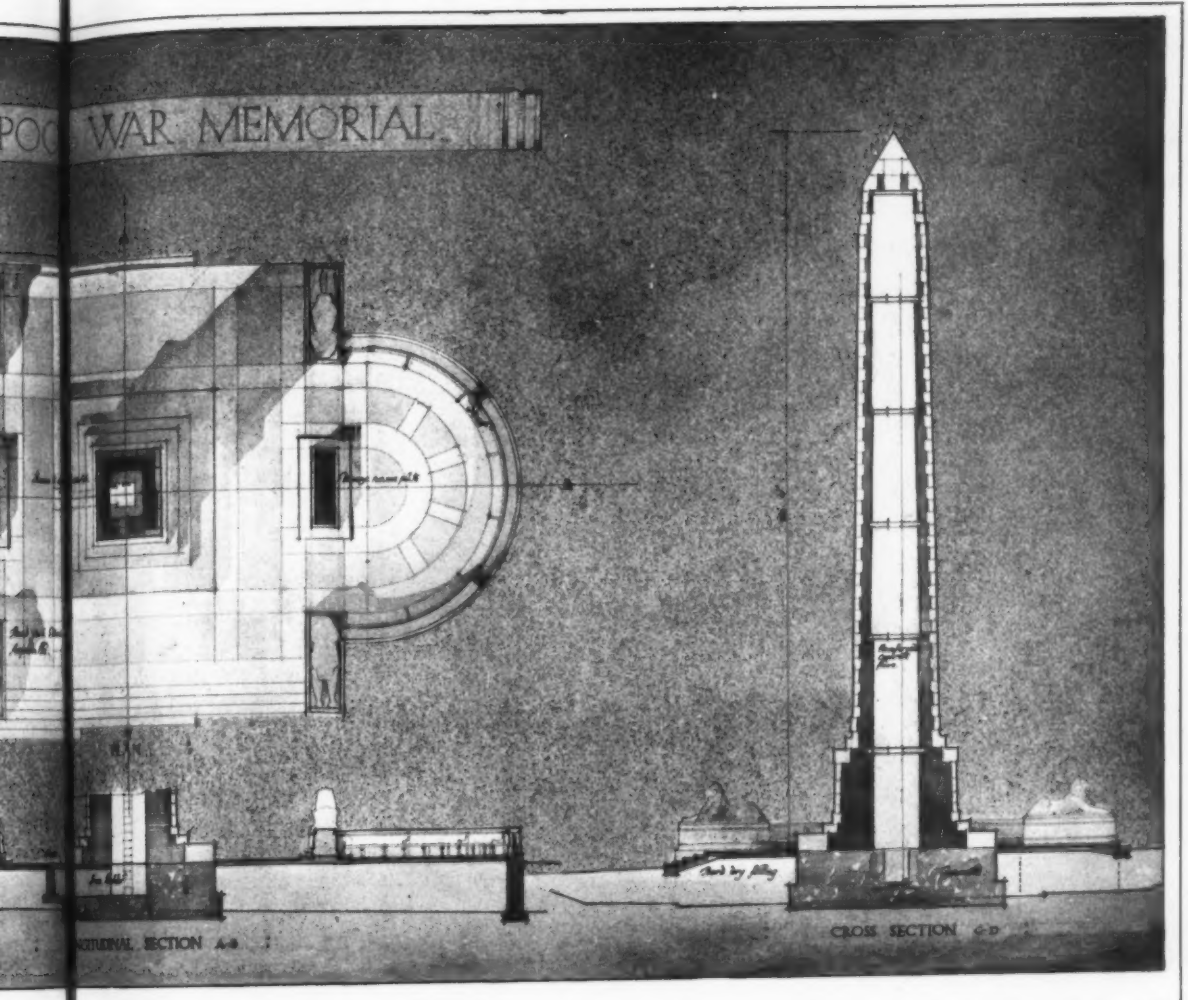




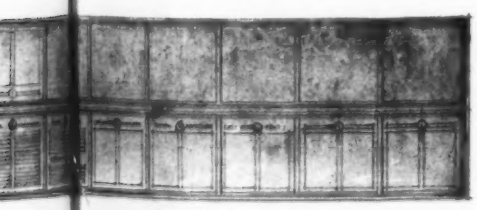
Side Elevation of War Stone.

CROSS SECTION

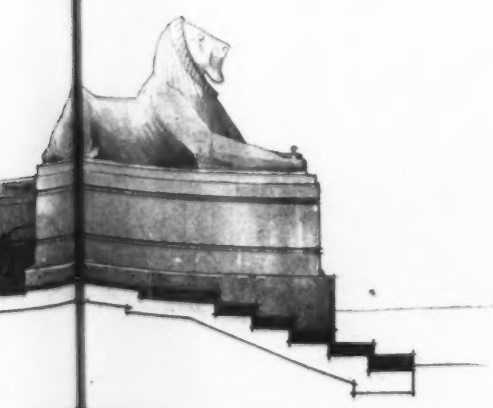
BLACKPOOL WAR MEMORIAL COMPETITION: FI
BY MR. ERNEST PRESTWI M. A., F

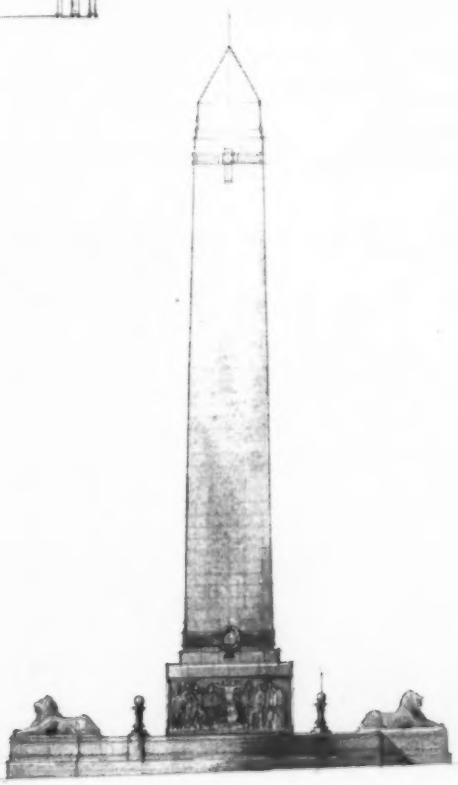


LACKPOOL WAR MEMORIAL.



Plan of
"WAR STONES"
bearing plate recording names of The Fallen.
1" Scale





NORTH ELEVATION
1/8 Scale

L COMPETITION: FIRST PREMIATED DESIGN.
T PRESTWICH, M. A., F. R. I. B. A.